

Brownfields Contaminated Soil Delineation Investigation  
Pigeon Property  
1705 Route 128  
Westford, Vermont



DEC SMS#2019-4863, EPA RFA 19093

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Prepared for:  
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LEE #19-138

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## 1.0 EXECUTIVE SUMMARY

LE Environmental LLC (LEE) conducted a Brownfields Contaminated Soil Delineation Investigation at the Pigeon Property, located at 1705 Route 128, Westford, Chittenden County, Vermont (Site). The Contaminated Soil Delineation Investigation was completed by LEE for the Chittenden County Regional Planning Commission (CCRPC) of Winooski, Vermont and was made possible in part by a grant from the State of Vermont through the Agency of Commerce and Community Development, Department of Economic Development. The work was conducted pursuant to the approved Site-Specific Quality Assurance Project Plan Addendum (SSQAPP Addendum) dated May 16, 2022, approved May 25, 2022, and the American Society of Testing and Materials (ASTM) Standard Practice for Environmental Site Assessments: Phase II Environmental Site Assessment Process (ASTM E 1903-11). Funding for this investigation was also supported by the US Environmental Protection Agency (USEPA), the CCRPC, and the nineteen member municipalities in Chittenden County. The Site owner is the Pigeon Family Living Trust.

The Site includes a vacant residence and a former bus repair garage and gasoline filling station on approximately 3.3 acres of land. The buildings are currently unoccupied and are used for storage. The Site was developed prior to 1858, and historic Site use has included residential, a gasoline filling station, and automotive and bus repair. A small store was also once present on the southeastern portion of the property, and a tannery was noted on the adjoining property to the west in 1869.

Previous environmental investigations conducted at the Site have revealed the presence of Polycyclic Aromatic Hydrocarbons (PAHs) in soils on the Site, as well as Volatile Organic Compounds (VOCs) in the groundwater. The objective of this investigation was to delineate shallow soils impacted with PAHs on the Site.

Twelve soil borings were advanced at the Site, and 12 shallow soil samples and a duplicate were collected and analyzed for the presence of PAHs via EPA Method 8270d. Soil borings were advanced to a depth of 1.5' below grade (bg) to collect shallow soil samples at each soil boring. Soil samples were screened for VOCs using a calibrated PID. No VOCs above background were reported in the soil samples.

This investigation completed the objective of defining PAH contamination in shallow soil on the Site. Concentrations of PAHs were reported in all of the soil samples and PAH concentrations were converted to PAH toxicity equivalency quotient (TEQ) relative to benzo[a]pyrene. PAH TEQ concentrations were all below the DEC's Statewide Urban Background concentration. Concentrations generally decreased northward.



The PAH contamination present on the Site is likely attributed to the historic storage of buses, auto parts, and other machinery in the area north and northeast of the garage as well as fill soils along the ravine.

LEE recommends an evaluation of corrective action alternatives (ECAA) and a corrective action plan (CAP) be prepared once a redevelopment plan is solidified per the requirements of Subchapter 6 of the DEC's I-Rule.

## 2.0 SITE INFORMATION

LE Environmental LLC (LEE) conducted a Brownfields Contaminated Soil Delineation Investigation at the Pigeon Property, located at 1705 Route 128, Westford, Chittenden County, Vermont (Site). The Contaminated Soil Delineation Investigation was completed by LEE for the Chittenden County Regional Planning Commission (CCRPC) of Winooski, Vermont and was made possible in part by a grant from the State of Vermont through the Agency of Commerce and Community Development, Department of Economic Development. The work was conducted pursuant to the approved Site-Specific Quality Assurance Project Plan Addendum (SSQAPP Addendum) dated May 16, 2022, approved May 25, 2022, and the American Society of Testing and Materials (ASTM) Standard Practice for Environmental Site Assessments: Phase II Environmental Site Assessment Process (ASTM E 1903-11). Funding for this investigation was also supported by the US Environmental Protection Agency (USEPA), the CCRPC, and the nineteen member municipalities in Chittenden County. The Site owner is the Pigeon Family Living Trust.

Site Information Table	
Site Owner Name:	Pigeon Family Living Trust – George Pigeon
Site Owner Address:	1705 Route 128, Westford, VT 05494
Site Owner E-mail:	<a href="mailto:gepigeon@msn.com">gepigeon@msn.com</a>
Site Owner Phone:	(802) 355-6628

## 3.0 CURRENT USE OF THE SITE

The Site includes a vacant residence and a former bus garage on approximately 3.3 acres of land. The buildings are currently unoccupied and are used for storage.

## 4.0 CURRENT ADJOINING PROPERTY USES

Current uses of the adjoining properties are as follows:

- North: Residential
- South: Town Common
- East: Multi-family residential
- West: Municipal Offices



## 5.0 SITE DESCRIPTION

The Site is located on the north side of Route 128. The area immediately surrounding the Site is the town center of Westford, with closely spaced residential homes, a municipal office building, a public library, and a town common. The DEC indicates that the Site is in a designated “urban background” zone for soil contamination. The topography of the Site is fairly flat on its south side, near Route 128, and then slopes downward to the north, toward the Browns River. There is also a ravine on the eastern side of the Site, which contains an outlet drainage pipe for the town common’s stormwater system. No odors or sheens have been noted on the water exiting the outlet pipe. Portions of the northern and eastern ends of the property appear to have wetland vegetation.

Three structures are currently present on the property. The residence is a two-story, wood framed structure with a full basement. The garage is a single-story, wood framed structure, with a slab on-grade foundation. The third building is a small wood framed shed.

## 6.0 LATITUDE/LONGITUDE

The Site coordinates are The Site coordinates are 44° 36’ 45.78” north latitude and 73° 0’ 34.99” west longitude.

## 7.0 PROPERTY HISTORY

The Site was developed prior to 1858. Historic Site use has included residential, with a gasoline filling station, and automotive and bus repair. A small store was also once present on the southeastern portion of the property. A building was noted on or near the northeastern property line on historic (1869 and 1915) maps. The building was gone by 1948. A tannery was noted on the adjoining property to the west in 1869.

A geophysical investigation performed at the Site revealed the possible presence of an underground storage tank (UST) near Route 128, and several smaller buried metal objects.

LEE prepared a Phase I Environmental Site Assessment (ESA) report for the property in September 2019 for the CCRPC, and three Recognized Environmental Conditions (RECs) were identified:

1. Historic use of the property for bus/automotive repair and as a gasoline filling station.
2. Possible presence of an abandoned underground storage tank (UST).
3. Historic adjoining property use as a tannery.



Subsequently, LEE conducted geophysical testing to locate an abandoned UST in 2019 and a Brownfields Phase II ESA in 2020. Both tasks were performed for the CCRPC. The Phase II ESA included removal of the abandoned gasoline UST, soil boring advancement, groundwater monitoring well installation, soil sampling, groundwater sampling, and drinking water sampling.

An abandoned, 1,100-gallon, gasoline UST was removed from the Site on June 2, 2020. The UST was a relic of the former gasoline filling station that operated on the Site from circa 1940 through the mid 1980s. The age of the UST and piping is not known, but it appeared to be at least 80 years old. The UST was a single-walled tank, and piping from other former USTs was also encountered in the excavation. The piping for the removed UST appeared to have been cut near the former pump island, and had paper stuffed in the end. It was buried approximately 1.5' to 2' bg and was found to be in failed condition upon removal, with extensive rust, pitting, and several large holes in the bottom of the UST. Groundwater was encountered at 6' below grade in the excavation, and a sheen was noted on the groundwater.

The photoionization detector (PID) readings ranged from 17.1 parts per million (ppm) in soil under the former dispenser island to 2,374 ppm at the top of the tank where piping (not attached to this tank) was found. PID readings ranging from 1,286 ppm to 1644 ppm were observed under the UST, which was also where groundwater was encountered.

A pipe with unknown purpose was noted on the southern wall of the UST excavation. The excavation could not be extended in this direction due to the presence of Route 128 and special permitting; traffic control, and engineering would be required to dig in this area.

The depth to water ranged from 4.45' below grade in the southern portion of the Site to 11.59' below grade in the northern portion of the Site. The overall groundwater flow beneath the Site appears to be northerly. The approximate hydraulic gradient is approximately 10% on the southern portion of the Site and 16% in the central and northern portions of the Site.

Groundwater is impacted with petroleum related Volatile Organic Compounds (VOCs) at concentrations above the Vermont Groundwater Enforcement Standards (VGES) and above the vapor intrusion standards for groundwater in the vicinity of the former UST, and the plume extends northerly at least 200 feet. The limits of the dissolved-phase contaminant plume were not defined by this investigation. The overall low permeability of the native soils implies the migration of the contaminant plume will be limited. The low permeability of the soils was evident during sampling, where very low recharge was noted in the groundwater monitoring wells.

Shallow and deep soils are impacted with petroleum contamination in the southern portion of the property, near the former UST location, and in the parking area to the



east. Shallow soils are impacted with Polycyclic Aromatic Hydrocarbons (PAHs) in the area to the north of the garage. The limits of the contamination were not defined by this investigation.

No VOCs were reported in the drinking water sample obtained during the Phase II ESA.

A Supplemental Site Investigation was completed in 2021. A geophysical investigation was conducted to investigate the area around the suspect pipe noted on the southern edge of the previous UST excavation on November 24, 2020. No evidence of a pipe or additional USTs beneath Route 128 was noted during the geophysical investigation.

A confirmatory round of groundwater sampling was performed on December 3, 2020. The depth to water ranged from 2.86' below grade (bg) at MW-1 to 8.62' bg at MW-5. Concentrations of benzene, toluene, ethylbenzene, xylenes, trimethylbenzenes, and naphthalene in excess of the Vermont Groundwater Enforcement Standards (VGES) were reported in the vicinity of the former UST location (MW-1). Ethylbenzene was reported in MW-2 below the VGES. No contaminant concentrations were reported above laboratory detection limits in MW-3, MW-4, or MW-5. A supply well sample was also obtained on December 3, 2020, and no VOCs were reported in the water supply sample.

Thirteen soil borings were advanced at the Site on December 21, 2020. Ten soil samples and a duplicate were obtained during drilling. Three additional groundwater monitoring wells, four soil gas wells, and two vapor pins were installed.

PAH toxicity equivalency quotient (TEQ) concentrations in excess of the DEC's Statewide Urban Background concentration were identified in five of the ten shallow soil samples obtained in the 2020 SSI. The northwestern, western, southern, and eastern limits of the PAH-impacted shallow soil were identified by the 2020 SSI sampling. However, the northern-most soil shallow soil samples contained PAH TEQ above the DEC's Statewide Urban Background concentration, indicating the extent of the contamination continues to the north some distance. The area of soils impacted is likely correlated to the historic storage of buses, auto parts, and other machinery in this area.

An additional round of groundwater sampling, including the three newly installed monitoring wells, was performed on January 7, 2021. The depth to water ranged from 2.09' bg at MW-7 to 10.27' bg at MW-5. Concentrations of MTBE, benzene, toluene, ethylbenzene, xylenes, trimethylbenzenes, and naphthalene in excess of the VGES were reported in MW-1. A naphthalene concentration in excess of the VGES was reported in MW-8. Concentrations of ethylbenzene and 1,3,5-trimethylbenzene below the VGES were reported in MW-2.



The northern, western, and southern portions of the groundwater contaminant plume have been defined. The eastern edge of the plume is not fully defined, but it likely terminates in the vicinity of MW-8 based on the fairly low concentration of naphthalene reported there.

Three soil gas, two sub-slab soil gas, and one outdoor ambient air sample were obtained on January 2, 2021. The soil gas samples were analyzed for the presence of VOCs via EPA Method TO-15. Several VOCs were reported in the soil gas samples including: benzene, carbon tetrachloride, ethylbenzene, methylene chloride, tetrachloroethene (PCE), acetone, ethanol, isopropanol, tetrahydrofuran, toluene, Freon 11, and xylenes. None of the reported concentrations exceeded DEC's residential vapor intrusion standards.

Additional contaminated soil delineation was completed in September 2021. Thirteen soil borings were advanced at the Site, and 15 soil samples and a duplicate were collected and analyzed for the presence of PAHs via EPA Method 8270d. Soil borings were advanced to a depth of 1.5' bg to collect shallow soil samples at eleven locations. Two soil borings were advanced to a depth of 6' bg to collect deeper soil samples. Soil samples were all screened for VOCs using a calibrated PID. No VOCs above background were reported in the soil samples.

PAH TEQ concentrations in excess of the DEC's Statewide Urban Background concentration were identified in four of the fifteen soil samples obtained. The northwestern, western, southern, and eastern extent of PAH-impacted shallow soils were defined during the 2021 investigation and previous investigations. PAH contaminated soils appeared to extend down the ravine some distance north beyond the soil samples collected during the 2021 investigation.

Deeper soil samples were also analyzed for PAHs at two locations during the 2021 investigation, and at two other locations during previous investigations. The vertical extent of PAH contamination appears to generally be limited to the upper soil horizons (0-18" bg). However, PAH TEQ in excess of the DEC's Statewide Urban Background concentration was observed in the 2-4' bg sample labeled SB-122S.

## **8.0 SITE CONTAMINANT BACKGROUND**

### **A. Release Date and Description**

Evidence of releases of hazardous substances and petroleum products at the Site was observed during the Phase II ESA, SSI, and this investigation. Exceedances of regulatory groundwater and residential soil standards are noted below:

1. Shallow soil samples obtained from an area north and northeast of the garage, where machinery was stored in the past, has concentrations of PAH TEQ values



in excess of the DEC's Statewide Urban Background concentration. The limits of this contamination are defined.

2. The depth of soil PAH contamination appears to be fairly confined to the top 1.5 feet. However, one deeper soil sample (SB-122s) contained PAH concentrations above background from 2-4 feet below grade.
3. Elevated PID readings, stained soils, and strong petroleum odors were noted in the gasoline UST excavation, including at shallow depths near the surface. Additionally, soils beneath the former UST had concentrations of Benzene, Ethylbenzene, Xylenes, trimethylbenzenes, and Naphthalene above residential regulatory standards. The fuel ID sample collected from underneath the UST indicated the presence of leaded gasoline.
4. Shallow and deep soils in the former dispenser area also had elevated PID readings, staining, and strong petroleum odors. Concentrations of Benzene and Naphthalene exceeded residential regulatory standards in the deep soils
5. Deep soils in the parking area on the southeastern portion of the Site exhibited elevated PID readings, staining, and weathered petroleum odors (SB-4).
6. Soils in soil boring SB-5/MW-2 exhibited elevated PID readings and petroleum odors at the groundwater interface. However, the contaminant concentrations reported from the soil sample did not exceed residential regulatory standards.
7. Groundwater in the former UST location (MW-1) has concentrations of MtBE, Benzene, Toluene, Ethylbenzene, Xylenes, trimethylbenzenes, Naphthalene, Arsenic, and Lead in exceedance of the Vermont Groundwater Enforcement Standards (VGES).
8. Downgradient monitoring well MW-2 and MW-5 had concentrations of Benzene and Naphthalene in exceedance of the VGES, and concentrations of Ethylbenzene were also reported above the VGES at MW-2 during the Phase II ESA. These exceedences were not replicated in the SSI. Groundwater exceedences noted during the SSI were limited to the former UST location (MW-1) and MW-8 (Naphthalene only).

## **9.0 UPDATED CONCEPTUAL SITE MODEL**

### **A. Updated Site Conceptual Model**

The area immediately surrounding the Site is the town center of Westford, with closely spaced residential homes, a municipal office building, a public library, and a town common. The topography of the Site is fairly flat on its south side, near Route 128, and then slopes downward to the north, toward the Browns River. There is also a ravine on the eastern side of the Site, which contains an outlet drainage pipe for the town common's stormwater system. No odors or sheens have been noted on the water exiting the outlet pipe.

The Site was developed as of the earliest record located thus far (1858). The property use has included residential with a gasoline filling station and automotive



and bus repair. According to the current owner, the gasoline tanks were no longer used after circa 1985. A small store was also once present on the southeastern portion of the Site. A tannery was present on the adjoining property to the west on an 1869 map. It is unknown how long the tannery operated.

The on-Site residence is heated with fuel oil. The garage is not currently heated but appears to have been heated with wood, propane, and/or fuel oil historically. The buildings are served by a private dug supply well and at least one septic system. The configuration and location of the septic system is not known.

Bedrock was not encountered in the environmental investigations performed to date. According to the most recent geologic map of Vermont, the bedrock in the vicinity of the Site consists of Cambrian and Neoproterozoic aged schist in the Pinnacle formation and the overburden deposits in the area of the Site are mapped as boulders in clay.<sup>1</sup>

The Site is approximately 470 feet above current sea level on the southern portion of the Site, and drops to approximately 435 feet above current sea level at the northern terminus of the parcel boundary. This area has undergone extensive deposition and erosional processes through recent glacial events. The retreat of the Laurentide Ice Sheet led to the formation of glacial Lake Vermont approximately 13,500 years ago. The elevation of the lake surface was approximately 620 feet above sea level, significantly higher than the elevation of the current Lake Champlain. Streams flowing off the melted glacier deposited many sediments, with larger sediments deposited near the front of the glacier and finer grained sediments deposited away from the front of the glacier. Clay and silt varves were deposited in the calmer portions of Lake Vermont.<sup>2</sup>

The data obtained from soil borings indicate the soils at the Site consist of an approximately 3' thick layer of sand with varying amounts of silt overlaying dense, native clay. The clay contained distinct sand layers in each boring, and distinct varves have been noted in several soil borings. This data suggests the Site was likely located in a calmer portion of Lake Vermont. Sand layers noted in the clay point to periods of higher energy deposition in the lake.

The depth to groundwater at the Site varied between the three groundwater sampling events performed to date. Groundwater levels in December 2020 were 0.45' to 6.89' higher than those reported in June 2020. The groundwater levels in January 2021 were 0.38' to 4.67' lower than those reported in December 2020. The depth to water in January 2020 ranged from 2.09' bg at MW-7 to 10.27' bg at MW-5. Groundwater flow is generally toward the north and northeast. The hydraulic gradient in the southern portion of the Site has been calculated between 5 and 10%,

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<sup>1</sup> ANR Atlas.

<sup>2</sup> S.F. Wright



while the hydraulic gradient on the central and northern portions of the Site has been calculated between 16 and 22%

The overall low permeability of the native soils implies the migration of the groundwater contaminant plume is limited, and it is not expected to travel off-Site. The low permeability of the soils was evident during sampling, where very low recharge has been noted in the groundwater monitoring wells. The sand layers noted during drilling are likely the mechanism for the migration of the low-level dissolved phase groundwater contamination away from the UST area.

Shallow and deep soils are impacted with petroleum contamination in the southern portion of the property, near the former UST location, and in a portion of the parking area to the east. Shallow soils are impacted with PAHs in the area to the north and northeast of the garage. The limits of the shallow soil PAH contamination have been defined. The extent of the contamination appears to correlate to the areas on the Site where buses, auto parts, and other machinery were previously stored and possibly where fill soils have been deposited on-Site. The depth of soil PAH contamination appears to be fairly confined to the top 1.5 feet. However, one deeper soil sample (SB-122s) contained PAH concentrations above background from 2-4 feet below grade.

Groundwater is impacted with petroleum related VOCs at concentrations above the VGES and the VI standards for groundwater in the vicinity of the former UST. The VGES exceedances are primarily limited to the former UST, with low-level contamination extended approximately 100' to the west, 50' to the north, and 75' to the east. The northern, southern, and western limits of the dissolved-phase contaminant plume have been defined. The eastern edge of the plume is not fully defined, but it likely terminates in the vicinity of MW-8 based on the fairly low concentration of naphthalene reported there.

Soil gas sampling results indicate several VOCs are present in the soil gas at the Site including: benzene, carbon tetrachloride, ethylbenzene, methylene chloride, tetrachloroethene (PCE), acetone, ethanol, isopropanol, tetrahydrofuran, toluene, Freon 11, and xylenes. None of the reported concentrations exceeded residential VI standards. The results suggest that while VOCs were detected in all of the soil gas samples obtained, since none of these concentrations exceeded residential VI standards, Site users are not likely to be impacted by these contaminants via vapor intrusion into the structures.

## **B. Potential Contamination Sources**

The most apparent source(s) of contamination at the Site include the leaking gasoline UST removed in June 2020 (soil and groundwater), historic USTs (soil and groundwater), and historic use and storage of hazardous substances and petroleum products (shallow soil).



### **C. Potential Receptors**

Potential receptors of contamination include Site users. Shallow soils are impacted with petroleum and PAHs at the Site. The limits of the dissolved-phase petroleum contamination plume have been fully defined by previous assessments except in the vicinity of MW-8, which is the eastern-most monitoring well in the network. The limits of the shallow soil PAH contamination are defined and appear to correspond to the previous bus and miscellaneous metal storage areas on the Site, as well as possible fill soil deposited near the ravine. The groundwater plume is not likely to be migrating off-Site due to the low permeability soils on the Site and the lack of contamination noted in the downgradient groundwater monitoring well. The Site is currently vacant and not used.

### **D. Utility Corridors**

Buried underground utilities known to exist on or in the immediate vicinity of the Site include the water line from the well to the residence and garage, and the septic systems for the buildings. The Westford Common to the south of the Site has a series of drainage lines, which connect to a drainage culvert on the eastern portion of the Site. A petroleum odor was noted in the vicinity of the drainage outfall during this investigation, but no water was being discharged and no sheens were noted. PID readings obtained in the culvert were 0.6 ppm. Petroleum vapors may be impacting the utility corridor; however, the levels of vapors appear to be fairly low.

### **E. Water Bodies and Wetlands**

The Browns River abuts the property on its northeast side, and is approximately 450' from the former UST location. There is also an unnamed tributary that runs through the western portion of the property, and this tributary is approximately 200 feet northwest of the former UST location. The ANR Natural Resources Atlas does not depict Vermont State Wetland Inventory (VSWI) or wetlands advisory areas on the Site. However, apparent wetland vegetation was noted on the northern portions of the Site. Based on the results of the investigation, surface water does not appear to be at risk.

### **F. Water Supplies**

The Site and nearby properties are served by private wells. Approximately 28 water supply wells are depicted on the ANR Natural Resources Atlas within a quarter-mile of the Site. The on-Site supply well was sampled and tested for VOCs twice, and no detections of VOCs or exceedances of regulatory standards were noted. The data



suggests off-Site supply wells are unlikely to be impacted from contamination at this Site.

#### **G. Site Users**

The Site is currently unoccupied and not being used except for storage by the owners of the property. Portions of the area have shallow soil contamination and future Site users could come into contact with this soil.

### **10.0 WORK PLAN DEVIATIONS**

All of the work described in the approved SSQAPP Addendum dated May 16, 2022 was performed as described with no deviations.

### **11.0 SAMPLE COLLECTION DOCUMENTATION**

The following tables outline the location of samples, the method of collection, and the soil boring identification number.

Soil Samples

Sample ID	Depth (ft bg)	Analytical Methods	Collection Method
SB-122	0-1.5	PAHs via 8270D	Grab from hand auger
SB-123	0-1.5	PAHs via 8270D	Grab from hand auger
SB-124/Duplicate	0-1.5	PAHs via 8270D	Grab from hand auger
SB-125	0-1.5	PAHs via 8270D	Grab from hand auger
SB-126	0-1.5	PAHs via 8270D	Grab from hand auger
SB-127	0-1.5	PAHs via 8270D	Grab from hand auger
SB-128	0-1.5	PAHs via 8270D	Grab from hand auger
SB-129	0-1.5	PAHs via 8270D	Grab from hand auger
SB-130	0-1.5	PAHs via 8270D	Grab from hand auger
SB-131	0-1.5	PAHs via 8270D	Grab from hand auger
SB-132	0-1.5	PAHs via 8270D	Grab from hand auger
SB-133	0-1.5	PAHs via 8270D	Grab from hand auger

### **12.0 CONTAMINATED MEDIA CHARACTERIZATION**

The goal of this work was to further define PAH contamination in shallow soils at the Site. The future plans for development of the Site include possible construction of commercial and residential development. Therefore, all laboratory analytical data have been evaluated in the context of state and federal residential thresholds for contaminated media in a DEC-designated urban background soil location.

#### **A. Soil**

Prior to the initiation of subsurface activities, LEE pre-marked the proposed boring locations and Dig Safe ticket number 20222209529 was obtained. The Site-Specific



Health and Safety Plan was reviewed by field staff prior to work. The locations of the soil borings are noted on the attached Contaminant Map.

On June 8, 2022, LEE advanced twelve soil borings at the locations shown on the attached map. The soil borings were advanced with a hand auger to a depth of 1.5' bg. A soil sample was obtained from each boring and the soil samples were screened for VOCs using a calibrated PID. No PID readings above background were obtained.

Soil samples were submitted for laboratory analysis of PAHs via EPA Method 8270d. A duplicate sample was obtained from SB-124. Samples were submitted to Eastern Analytical Inc. of Concord, NH (EAI) for analysis.

Concentrations of PAHs were reported in all of the soil samples. PAH concentrations were converted to TEQ relative to benzo[a]pyrene. PAH TEQ concentrations were all below the DEC's Statewide Urban Background concentration. Concentrations generally decreased northward.

One soil sample, SB-123, was obtained directly below the drainage culvert in the ravine. PAH concentrations were detected in this sample but they are below the DEC's Statewide Urban Background concentration. A petroleum odor was noted in the vicinity of the drainage outfall during this investigation, but no water was being discharged at the time of sampling, and no sheens were noted in the ravine. PID readings obtained in the culvert were 0.6 ppm.

The tabulated soil testing results, Method 2 CRA worksheets, and laboratory report are in Appendix B.

## **13.0 SITE-SPECIFIC RISK ASSESSMENT**

No site-specific risk assessment was proposed or generated during this Brownfields Contaminated Soil Delineation Investigation.

## **14.0 MAPS**

A Site location map, current ANR Natural Resources Atlas map, and shallow soil contaminant distribution map are attached.

## **15.0 DISCUSSION**

### **A. Soil Sample Results**

The objective of this investigation was to delineate shallow soils impacted with PAHs on the Site. The area of shallow soils with PAH TEQ concentrations in excess of the DEC's Statewide Urban Background concentration has been defined. A visual



interpretation of the data is presented in the Shallow Soil Contaminant Distribution Map.

The PAH contamination present on the Site is likely attributed to the historic storage of buses, auto parts, and other machinery in the area north and northeast of the garage as well as fill soils along the ravine.

#### Method 2 Cumulative Risk Assessment

Method 2 Cumulative Risk Assessments (CRA) were performed for all shallow soil data without indicated exceedances of current residential soil standards. The results of the Method 2 CRA do not indicate an elevated carcinogenic or non-carcinogenic risk at those locations. Method 2 CRA tabulations are included in Appendix B.

## **16.0 DATA PRESENTATION**

LEE compiled current and previous analytical data for the Site in tabular format with comparisons to the current state and federal soil screening values presented in the I-Rule. These tables and the supporting laboratory data in Appendix B. Observations regarding the data and comparison to current screening values are presented in Section 12.

## **17.0 QA/QC SAMPLE RESULTS**

LEE's quality assurance officer performed data validation on all field and laboratory data generated during the Brownfields Contaminated Soil Delineation Investigation, according to LEE's current generic QAPP (RFA 19093) and the approved SSQAPP Addendum dated May 16, 2022. The results are included in Appendix C and they indicate the field and laboratory data should be accepted without qualification.

## **18.0 INVESTIGATION DERIVED WASTE**

Investigation-derived waste associated with this investigation included small amounts of soils generated during soil borings. All of the soils generated were returned to the Site.

## **19.0 CONCLUSIONS AND RECOMMENDATIONS**

LEE has developed the following conclusions during the Brownfields Contaminated Soil Delineation Investigation:

- Twelve soil borings were advanced at the Site on June 8, 2022. Twelve soil samples and a duplicate were obtained.



- No PID readings above background were obtained in the soil samples.
- Concentrations of PAHs were reported in all of the soil samples, and all PAH TEQ concentrations were below the DEC's Statewide Urban Background concentration. Concentrations generally decreased northward.
- One soil sample, SB-123, was obtained directly below the drainage culvert in the ravine. PAH concentrations were detected in this sample but they are below the DEC's Statewide Urban Background concentration. A petroleum odor was noted in the vicinity of the drainage outfall during this investigation, but no water was being discharged at the time of sampling, and no sheens were noted in the ravine. PID readings obtained in the culvert were 0.4 ppm.
- The area of shallow soils with PAH TEQ concentrations in excess of the DEC's Statewide Urban Background concentration has been defined. The PAH contamination present on the Site is likely attributed to the historic storage of buses, auto parts, and other machinery in the area north and northeast of the garage as well as fill soils along the ravine.

LEE has developed the following recommendations:

- An evaluation of corrective action alternatives (ECAA) and a corrective action plan (CAP) should be prepared once a redevelopment plan is solidified per the requirements of Subchapter 6 of the DEC's I-Rule.

## 20.0 SIGNATURE AND CERTIFICATION

"I certify under penalty of perjury that I am an environmental professional and that all content contained within this deliverable is to the best of my knowledge true and correct."

A handwritten signature in cursive script, reading 'Angela Emerson', written in black ink.

Angela Emerson, PG, Environmental Professional



## **21.0 MAPS AND APPENDICES**

### MAPS

Site Location Map

ANR Atlas Map

Shallow Soil Contaminant Distribution Map - B(a)P TEQ

### APPENDICES

- A. Standard Operating Procedures
- B. Soil Data Tabulation and Laboratory Analytical Results
- C. Data Validation Report
- D. Field Notes



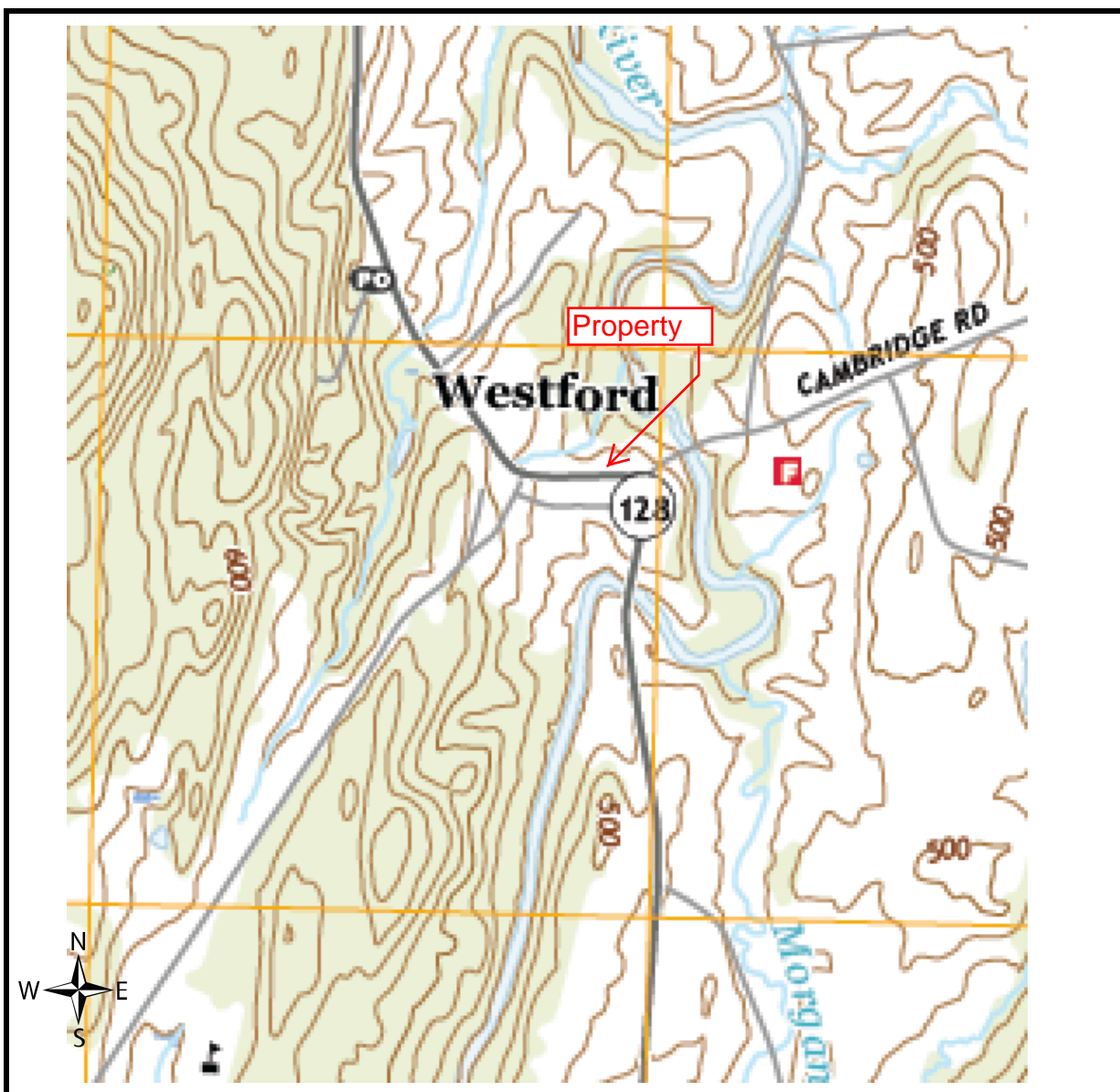
Brownfields Contaminated Soil Delineation Investigation Report  
Pigeon Property, 1705 Route 128, Westford, Vermont

MAPS

Site Location Map

ANR Atlas Map

Shallow Soil Contaminant Distribution Map - B(a)P TEQ



**1705 Route 128**  
**Westford, Vermont**

























**Site Location Map**

LEE# 19-139  
Date: September 6, 2019  
Source: USGS Store



## LEGEND

-  Hazardous Site
-  Hazardous Waste Generators
-  Brownfields
-  Salvage Yard
-  Aboveground Storage Tank
-  Underground Storage Tank (w/)
-  Dry Cleaner
-  Parcels (standardized)
- Roads**
  -  Interstate
  -  US Highway; 1
  -  State Highway
  -  Town Highway (Class 1)
  -  Town Highway (Class 2,3)
  -  Town Highway (Class 4)
  -  State Forest Trail
  -  National Forest Trail
  -  Legal Trail
  -  Private Road/Driveway
  -  Proposed Roads
- Stream/River**
  -  Stream
  -  Intermittent Stream
-  Town Boundary



1: 4,461

June 23, 2022



## NOTES

Map created using ANR's Natural Resources Atlas

227.0 0 114.00 227.0 Meters

WGS\_1984\_Web\_Mercator\_Auxiliary\_Sphere


© Vermont Agency of Natural Resources

1" = 372 Ft. 1cm = 45 Meters

THIS MAP IS NOT TO BE USED FOR NAVIGATION

DISCLAIMER: This map is for general reference only. Data layers that appear on this map may or may not be accurate, current, or otherwise reliable. ANR and the State of Vermont make no representations of any kind, including but not limited to, the warranties of merchantability, or fitness for a particular use, nor are any such warranties to be implied with respect to the data on this map.



 <p>21 North Main Street Unit #1 Waterbury, Vermont Phone: 802-917-2001 www.leenv.net</p>	<h2 style="text-align: center;">Shallow Soil Contaminant Distribution Map B[a]P TEQ Pigeon Property 1705 Route 128 Westford, Vermont</h2>	<p><b>Legend</b></p> <ul style="list-style-type: none"> <li><span style="color: green;">●</span> Soil boring/soil sample with B[a]P TEQ concentrations reported in (mg/kg) Exceedance of VT urban background in bold</li> <li><span style="color: orange;">&gt;</span> PAH Concentrations &gt; Urban Background</li> <li><span style="border: 1px dashed red; padding: 2px;">X</span> Former gasoline UST</li> </ul> <p>Drawing Date: 6/22/22 Project #: 19-138</p>
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Brownfields Contaminated Soil Delineation Investigation Report  
Pigeon Property, 1705 Route 128, Westford, Vermont

APPENDIX A

Standard Operating Procedures



Field Standard Operating Procedures used during this work:

- LEE SOP A: Soil Sampling
- LEE SOP B: Soil Borings, Groundwater Monitoring Well Installation and Low flow groundwater sampling
- LEE SOP E: Sample Handling
- LEE SOP F: PID Operation



Brownfields Contaminated Soil Delineation Investigation Report  
Pigeon Property, 1705 Route 128, Westford, Vermont

APPENDIX B

Soil Data Tabulation  
Laboratory Analytical Results

**Soil PAH Delineation  
Pigeon Property  
Westford, Vermont  
Soil Data Summary**



Page 1 of 3

Sample Identification	SB-122	SB-123	SB-124	SB-125	SB-126	SB-127	SB-128	SB-129	SB-130	SB-131	SB-132	EPA Residential RSL (mg/kg)	EPA Industrial RSL (mg/kg)	VSS Residential (mg/kg)	VSS Non- Residential (mg/kg)
Sample Depth (ft. bg)	0-1.5	0-1.5	0-1.5	0-1.5	0-1.5	0-1.5	0-1.5	0-1.5	0-1.5	0-1.5	0-1.5				
PID Reading (ppm)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0				
Sample Date	6/8/22	6/8/22	6/8/22	6/8/22	6/8/22	6/8/22	6/8/22	6/8/22	6/8/22	6/8/22	6/8/22				
<b>PAH EPA Method 8270D (mg/kg)</b>															
Naphthalene	ND< 0.009	ND< 0.009	ND< 0.008	ND< 0.01	ND< 0.009	ND< 0.008	ND< 0.009	ND< 0.009	ND< 0.008	ND< 0.01	ND< 0.009	-	-	2.7	16
2-Methylnaphthalene	ND< 0.009	ND< 0.009	ND< 0.008	ND< 0.01	ND< 0.009	ND< 0.008	ND< 0.009	ND< 0.009	ND< 0.008	ND< 0.01	ND< 0.009	240	3,000	-	-
1-Methylnaphthalene	ND< 0.009	ND< 0.009	ND< 0.008	ND< 0.01	ND< 0.009	ND< 0.008	ND< 0.009	ND< 0.009	ND< 0.008	ND< 0.01	ND< 0.009	18	73	-	-
Acenaphthylene	<b>0.026</b>	<b>0.021</b>	<b>0.015</b>	ND< 0.01	<b>0.022</b>	ND< 0.008	ND< 0.009	<b>0.0099</b>	ND< 0.008	ND< 0.01	ND< 0.009	-	-	-	-
Acenaphthene	ND< 0.009	ND< 0.009	ND< 0.008	ND< 0.01	ND< 0.009	ND< 0.008	ND< 0.009	ND< 0.009	ND< 0.008	ND< 0.01	ND< 0.009	3,600	45,000	-	-
Fluorene	ND< 0.009	ND< 0.009	0.0087	ND< 0.01	ND< 0.009	ND< 0.008	ND< 0.009	ND< 0.009	ND< 0.008	ND< 0.01	ND< 0.009	-	-	2,301	26,371
Phenanthrene	<b>0.09</b>	<b>0.059</b>	<b>0.11</b>	<b>0.02</b>	<b>0.011</b>	ND< 0.008	<b>0.013</b>	<b>0.036</b>	ND< 0.008	ND< 0.01	<b>0.024</b>	-	-	-	-
Anthracene	<b>0.022</b>	<b>0.019</b>	<b>0.011</b>	ND< 0.01	ND< 0.009	ND< 0.008	ND< 0.009	ND< 0.009	ND< 0.008	ND< 0.01	ND< 0.009	18,000	230,000	-	-
Fluoranthene	<b>0.25</b>	<b>0.3</b>	<b>0.15</b>	<b>0.042</b>	<b>0.051</b>	<b>0.014</b>	<b>0.02</b>	<b>0.074</b>	<b>0.013</b>	<b>0.012</b>	<b>0.041</b>	-	-	2,301	26,371
Pyrene	<b>0.2</b>	<b>0.27</b>	<b>0.13</b>	<b>0.035</b>	<b>0.078</b>	<b>0.012</b>	<b>0.017</b>	<b>0.071</b>	<b>0.012</b>	<b>0.01</b>	<b>0.034</b>	1,800	23,000	-	-
Benzo(a)anthracene	<b>0.11</b>	<b>0.14</b>	<b>0.062</b>	<b>0.017</b>	<b>0.047</b>	<b>0.0087</b>	<b>0.0093</b>	<b>0.04</b>	<b>0.0088</b>	ND< 0.01	<b>0.015</b>	1.1	21	-	-
Chrysene	<b>0.13</b>	<b>0.15</b>	<b>0.07</b>	<b>0.019</b>	<b>0.055</b>	ND< 0.008	ND< 0.009	<b>0.045</b>	ND< 0.008	ND< 0.01	<b>0.017</b>	110	2,100	-	-
Benzo(b)fluoranthene	<b>0.17</b>	<b>0.19</b>	<b>0.077</b>	<b>0.025</b>	<b>0.049</b>	<b>0.0085</b>	<b>0.0092</b>	<b>0.064</b>	<b>0.0091</b>	ND< 0.01	<b>0.021</b>	1.1	21	-	-
Benzo(k)fluoranthene	<b>0.07</b>	<b>0.072</b>	<b>0.027</b>	<b>0.011</b>	<b>0.019</b>	ND< 0.008	ND< 0.009	<b>0.023</b>	ND< 0.008	ND< 0.01	ND< 0.009	11	210	-	-
Benzo(a)pyrene	<b>0.14</b>	<b>0.16</b>	<b>0.067</b>	<b>0.021</b>	<b>0.055</b>	ND< 0.008	ND< 0.009	<b>0.053</b>	ND< 0.008	ND< 0.01	<b>0.017</b>	-	-	0.07	1.54
Indeno(1,2,3-cd)pyrene	<b>0.09</b>	<b>0.12</b>	<b>0.047</b>	<b>0.017</b>	<b>0.026</b>	ND< 0.008	ND< 0.009	<b>0.037</b>	ND< 0.008	ND< 0.01	<b>0.012</b>	1.1	21	-	-
Dibenz(a,h)anthracene	<b>0.015</b>	<b>0.022</b>	<b>0.0095</b>	ND< 0.01	ND< 0.009	ND< 0.008	ND< 0.009	ND< 0.009	ND< 0.008	ND< 0.01	ND< 0.009	0.11	2.1	-	-
Benzo(g,h,i)perylene	<b>0.083</b>	<b>0.12</b>	<b>0.044</b>	<b>0.016</b>	<b>0.025</b>	ND< 0.008	ND< 0.009	<b>0.033</b>	ND< 0.008	ND< 0.01	<b>0.01</b>	-	-	-	-
Total Reported PAHs	<b>1.4</b>	<b>1.6</b>	<b>0.83</b>	<b>0.22</b>	<b>0.438</b>	<b>0.043</b>	<b>0.01</b>	<b>0.49</b>	<b>0.043</b>	<b>0.02</b>	<b>0.19</b>	-	-	-	-
PAH TEQ as Benzo(a)pyrene	<b>0.19</b>	<b>0.23</b>	<b>0.10</b>	<b>0.03</b>	<b>0.07</b>	<b>0.01</b>	<b>0.01</b>	<b>0.07</b>	<b>0.01</b>	<b>0.01</b>	<b>0.03</b>	-	-	-	0.58 (urban bkgd)

Sample Identification	SB-133	Dup SB-124	EPA Residential RSL (mg/kg)	EPA Industrial RSL (mg/kg)	VSS Residential (mg/kg)	VSS Non- Residential (mg/kg)
Sample Depth (ft. bg)	0-1.5	0-1.5				
PID Reading (ppm)	0.0	0.0				
Sample Date	6/8/22	6/8/22				
<b>PAH EPA Method 8270D (mg/kg)</b>						
Naphthalene	ND< 0.009	ND< 0.008	-	-	2.7	16
2-Methylnaphthalene	ND< 0.009	ND< 0.008	240	3,000	-	-
1-Methylnaphthalene	ND< 0.009	ND< 0.008	18	73	-	-
Acenaphthylene	ND< 0.009	ND< 0.008	-	-	-	-
Acenaphthene	ND< 0.009	ND< 0.008	3,600	45,000	-	-
Fluorene	ND< 0.009	ND< 0.008	-	-	2,301	26,371
Phenanthrene	ND< 0.009	ND< 0.008	-	-	-	-
Anthracene	ND< 0.009	ND< 0.008	18,000	230,000	-	-
Fluoranthene	<b>0.012</b>	<b>0.015</b>	-	-	2,301	26,371
Pyrene	<b>0.011</b>	<b>0.016</b>	1,800	23,000	-	-
Benzo(a)anthracene	ND< 0.009	<b>0.0098</b>	1.1	21	-	-
Chrysene	ND< 0.009	<b>0.0098</b>	110	2,100	-	-
Benzo(b)fluoranthene	ND< 0.009	<b>0.012</b>	1.1	21	-	-
Benzo(k)fluoranthene	ND< 0.009	ND< 0.008	11	210	-	-
Benzo(a)pyrene	ND< 0.009	<b>0.0097</b>	-	-	0.07	1.54
Indeno(1,2,3-cd)pyrene	ND< 0.009	ND< 0.008	1.1	21	-	-
Dibenz(a,h)anthracene	ND< 0.009	ND< 0.008	0.11	2.1	-	-
Benzo(g,h,i)perylene	ND< 0.009	ND< 0.008	-	-	-	-
Total Reported PAHs	<b>0.023</b>	<b>0.072</b>	-	-	-	-
PAH TEQ as Benzo(a)pyrene	<b>0.01</b>	<b>0.02</b>	-	-	-	0.58 (urban bkgd)

**NOTES:**

Vermont Soil Standards (VSS) and Statewide Background Concentrations from July 2019 DEC I-Rule  
EPA Regional Screening Levels (RSLs) from May 2020 RSL Summary Table. RSLs not included when a VSS exists.  
Reported results or reporting limits equal to or in excess of residential soil thresholds are shaded.  
Dashed Cell=no published value (VSS) or published value not applicable (RSL)

**Toxic Equivalency Calculations**  
**Pigeon Property**  
Page 2 of 3



SB-122

Contaminant	Concentration (mg/kg)	Toxicity Equivalency Factor	Toxicity Equivalents to Benzo(a)pyrene
Benzo(a)anthracene	0.11	0.1	0.011
Chrysene	0.13	0.001	0.00013
Benzo(b)fluoranthene	0.17	0.1	0.017
Benzo(k)fluoranthene	0.070	0.01	0.0007
Benzo(a)pyrene	0.14	1	0.14
Indeno(1,2,3-cd)pyrene	0.090	0.1	0.009
Dibenz(a,h)anthracene	0.015	1	0.015
Total Benzo(a)pyrene Equivalent =			0.19

SB-123

Contaminant	Concentration (mg/kg)	Toxicity Equivalency Factor	Toxicity Equivalents to Benzo(a)pyrene
Benzo(a)anthracene	0.14	0.1	0.014
Chrysene	0.15	0.001	0.00015
Benzo(b)fluoranthene	0.19	0.1	0.019
Benzo(k)fluoranthene	0.072	0.01	0.00072
Benzo(a)pyrene	0.16	1	0.16
Indeno(1,2,3-cd)pyrene	0.12	0.1	0.012
Dibenz(a,h)anthracene	0.022	1	0.022
Total Benzo(a)pyrene Equivalent =			0.23

SB-124

Contaminant	Concentration (mg/kg)	Toxicity Equivalency Factor	Toxicity Equivalents to Benzo(a)pyrene
Benzo(a)anthracene	0.062	0.1	0.0062
Chrysene	0.070	0.001	0.00007
Benzo(b)fluoranthene	0.077	0.1	0.0077
Benzo(k)fluoranthene	0.027	0.01	0.00027
Benzo(a)pyrene	0.067	1	0.067
Indeno(1,2,3-cd)pyrene	0.047	0.1	0.0047
Dibenz(a,h)anthracene	0.0095	1	0.0095
Total Benzo(a)pyrene Equivalent =			0.10

SB-125

Contaminant	Concentration (mg/kg)	Toxicity Equivalency Factor	Toxicity Equivalents to Benzo(a)pyrene
Benzo(a)anthracene	0.017	0.1	0.0017
Chrysene	0.019	0.001	0.000019
Benzo(b)fluoranthene	0.025	0.1	0.0025
Benzo(k)fluoranthene	0.011	0.01	0.00011
Benzo(a)pyrene	0.021	1	0.021
Indeno(1,2,3-cd)pyrene	0.017	0.1	0.0017
Dibenz(a,h)anthracene	0.005	1	0.005
Total Benzo(a)pyrene Equivalent =			0.03

SB-126

Contaminant	Concentration (mg/kg)	Toxicity Equivalency Factor	Toxicity Equivalents to Benzo(a)pyrene
Benzo(a)anthracene	0.047	0.1	0.0047
Chrysene	0.055	0.001	0.000055
Benzo(b)fluoranthene	0.049	0.1	0.0049
Benzo(k)fluoranthene	0.019	0.01	0.00019
Benzo(a)pyrene	0.055	1	0.055
Indeno(1,2,3-cd)pyrene	0.026	0.1	0.0026
Dibenz(a,h)anthracene	0.0045	1	0.0045
Total Benzo(a)pyrene Equivalent =			0.07

SB-127

Contaminant	Concentration (mg/kg)	Toxicity Equivalency Factor	Toxicity Equivalents to Benzo(a)pyrene
Benzo(a)anthracene	0.0087	0.1	0.00087
Chrysene	0.004	0.001	0.000004
Benzo(b)fluoranthene	0.0085	0.1	0.00085
Benzo(k)fluoranthene	0.004	0.01	0.00004
Benzo(a)pyrene	0.004	1	0.004
Indeno(1,2,3-cd)pyrene	0.004	0.1	0.0004
Dibenz(a,h)anthracene	0.004	1	0.004
Total Benzo(a)pyrene Equivalent =			0.01

Toxic Equivalency Calculations  
Pigeon Property  
Page 3 of 3



SB-128

Contaminant	Concentration (mg/kg)	Toxicity Equivalency Factor	Toxicity Equivalents to Benzo(a)pyrene
Benzo(a)anthracene	0.0093	0.1	0.00093
Chrysene	0.0045	0.001	0.0000045
Benzo(b)fluoranthene	0.0092	0.1	0.00092
Benzo(k)fluoranthene	0.0045	0.01	0.000045
Benzo(a)pyrene	0.0045	1	0.0045
Indeno(1,2,3-cd)pyrene	0.0045	0.1	0.00045
Dibenz(a,h)anthracene	0.0045	1	0.0045
Total Benzo(a)pyrene Equivalent =			0.01

SB-129

Contaminant	Concentration (mg/kg)	Toxicity Equivalency Factor	Toxicity Equivalents to Benzo(a)pyrene
Benzo(a)anthracene	0.040	0.1	0.004
Chrysene	0.045	0.001	0.000045
Benzo(b)fluoranthene	0.064	0.1	0.0064
Benzo(k)fluoranthene	0.023	0.01	0.00023
Benzo(a)pyrene	0.053	1	0.053
Indeno(1,2,3-cd)pyrene	0.037	0.1	0.0037
Dibenz(a,h)anthracene	0.0045	1	0.0045
Total Benzo(a)pyrene Equivalent =			0.07

SB-130

Contaminant	Concentration (mg/kg)	Toxicity Equivalency Factor	Toxicity Equivalents to Benzo(a)pyrene
Benzo(a)anthracene	0.0088	0.1	0.00088
Chrysene	0.004	0.001	0.000004
Benzo(b)fluoranthene	0.0091	0.1	0.00091
Benzo(k)fluoranthene	0.004	0.01	0.00004
Benzo(a)pyrene	0.004	1	0.004
Indeno(1,2,3-cd)pyrene	0.004	0.1	0.0004
Dibenz(a,h)anthracene	0.004	1	0.004
Total Benzo(a)pyrene Equivalent =			0.01

SB-131

Contaminant	Concentration (mg/kg)	Toxicity Equivalency Factor	Toxicity Equivalents to Benzo(a)pyrene
Benzo(a)anthracene	0.005	0.1	0.0005
Chrysene	0.005	0.001	0.000005
Benzo(b)fluoranthene	0.005	0.1	0.0005
Benzo(k)fluoranthene	0.005	0.01	0.00005
Benzo(a)pyrene	0.005	1	0.005
Indeno(1,2,3-cd)pyrene	0.005	0.1	0.0005
Dibenz(a,h)anthracene	0.005	1	0.005
Total Benzo(a)pyrene Equivalent =			0.01

SB-132

Contaminant	Concentration (mg/kg)	Toxicity Equivalency Factor	Toxicity Equivalents to Benzo(a)pyrene
Benzo(a)anthracene	0.015	0.1	0.0015
Chrysene	0.017	0.001	0.000017
Benzo(b)fluoranthene	0.021	0.1	0.0021
Benzo(k)fluoranthene	0.0045	0.01	0.000045
Benzo(a)pyrene	0.017	1	0.017
Indeno(1,2,3-cd)pyrene	0.012	0.1	0.0012
Dibenz(a,h)anthracene	0.0045	1	0.0045
Total Benzo(a)pyrene Equivalent =			0.03

SB-133

Contaminant	Concentration (mg/kg)	Toxicity Equivalency Factor	Toxicity Equivalents to Benzo(a)pyrene
Benzo(a)anthracene	0.0045	0.1	0.00045
Chrysene	0.0045	0.001	0.0000045
Benzo(b)fluoranthene	0.0045	0.1	0.00045
Benzo(k)fluoranthene	0.0045	0.01	0.000045
Benzo(a)pyrene	0.0045	1	0.0045
Indeno(1,2,3-cd)pyrene	0.0045	0.1	0.00045
Dibenz(a,h)anthracene	0.0045	1	0.0045
Total Benzo(a)pyrene Equivalent =			0.01

Duplicate SB-124

Contaminant	Concentration (mg/kg)	Toxicity Equivalency Factor	Toxicity Equivalents to Benzo(a)pyrene
Benzo(a)anthracene	0.0098	0.1	0.00098
Chrysene	0.0098	0.001	0.0000098
Benzo(b)fluoranthene	0.012	0.1	0.0012
Benzo(k)fluoranthene	0.004	0.01	0.00004
Benzo(a)pyrene	0.0097	1	0.0097
Indeno(1,2,3-cd)pyrene	0.004	0.1	0.0004
Dibenz(a,h)anthracene	0.004	1	0.004
Total Benzo(a)pyrene Equivalent =			0.02

\*\*\*Read the directions, in their entirety, on the 'Directions' Tab before use.\*\*\*

sample information

Site Number:	2019-4863
Site Name:	Pigeon Property
Sample Number:	SB-122
Sample Depth:	0-18"
Sample Date:	6/8/22

1. Select chemicals from dropdown list

2. Input reported concentrations in mg/kg

3. View autocalculated ILCR and HQ associated with each individual chemical

Analyte	CASRN	RB-RSV <sub>u</sub> (mg/kg)	RB-RSV <sub>c</sub> (mg/kg)	Sample Concentration (mg/kg)	Calculated Sample ILCR (unitless)	Calculated Sample HQ (unitless)
2,3,7,8-TCDD TEQ <sup>a</sup>	1746-01-6 <sup>b</sup>	2.25E-06	4.91E-05		Analyte conc. < RL	Analyte conc. < RL
BaP-TE <sup>c</sup>	—	7.28E-02	NA		Analyte conc. < RL	No noncancer RB-RSV
Benzo(a)pyrene <sup>d</sup>	50-32-8	NA	1.72E+01		Included in BaP-TE	Analyte conc. < RL
Total PCBs <sup>e</sup>	1336-36-3	1.14E-01	1.13E+00		Analyte conc. < RL	Analyte conc. < RL
Acetamin	34256-82-1	NA	1.22E+03		No cancer RB-RSV	Analyte conc. < RL
Acetone	67-64-1	NA	4.06E+04		No cancer RB-RSV	Analyte conc. < RL
Alachlor	15972-60-8	NA	6.08E+01		No cancer RB-RSV	Analyte conc. < RL
Aldrin	309-00-2	2.02E-02	2.10E+00		Analyte conc. < RL	Analyte conc. < RL
Aluminum	7429-90-5	NA	7.25E+04		No cancer RB-RSV	Analyte conc. < RL
Antimony	7440-36-0	NA	2.60E+01		No cancer RB-RSV	Analyte conc. < RL
Barium	7440-39-3	NA	1.12E+04		No cancer RB-RSV	Analyte conc. < RL
Benzoyl	17804-33-2	1.16E+02	7.90E+02		Analyte conc. < RL	Analyte conc. < RL
Benzene	71-43-2	6.98E-01	1.11E+02		Analyte conc. < RL	Analyte conc. < RL
Beryllium	7440-41-7	5.67E+02	3.45E+01		Analyte conc. < RL	Analyte conc. < RL
Bis(2-chloro-1-methyl ethyl) ether	108-60-1	NA	2.80E+03		No cancer RB-RSV	Analyte conc. < RL
Boron	7440-42-8	NA	1.47E+04		No cancer RB-RSV	Analyte conc. < RL
Bromate	15541-45-4	5.36E-01	2.93E+02		Analyte conc. < RL	Analyte conc. < RL
Bromochloromethane	74-97-5	NA	1.93E+02		No cancer RB-RSV	Analyte conc. < RL
Bromobenzyl	1689-84-5	2.69E+00	9.12E+02		Analyte conc. < RL	Analyte conc. < RL
Butylbenzene, n-	104-51-8	NA	3.50E+03		No cancer RB-RSV	Analyte conc. < RL
Butylbenzene, sec-	135-98-8	NA	7.01E+03		No cancer RB-RSV	Analyte conc. < RL
Butylbenzene, tert-	98-06-6	NA	7.01E+03		No cancer RB-RSV	Analyte conc. < RL
Cadmium (food)	7440-43-9	7.56E+02	6.86E+00		Analyte conc. < RL	Analyte conc. < RL
Carbaryl	63-25-2	3.17E+02	6.08E+03		Analyte conc. < RL	Analyte conc. < RL
Carbon Disulfide	75-15-0	NA	6.08E+02		No cancer RB-RSV	Analyte conc. < RL
Carbon tetrachloride	56-23-5	3.72E-01	1.30E+02		Analyte conc. < RL	Analyte conc. < RL
Chlorobenzene	108-90-7	NA	4.14E+02		No cancer RB-RSV	Analyte conc. < RL
Chromium (III) (insoluble salts)	16065-83-1	NA	4.02E+04		No cancer RB-RSV	Analyte conc. < RL
Chromium (VI)	18540-29-9	9.06E-02	1.16E+02		Analyte conc. < RL	Analyte conc. < RL
Cobalt	7440-48-4	1.51E+02	2.19E+01		Analyte conc. < RL	Analyte conc. < RL
Copper	7440-50-8	NA	1.04E+04		No cancer RB-RSV	Analyte conc. < RL
Di (2-ethylhexyl) phthalate	117-81-7	1.98E+01	1.22E+03		Analyte conc. < RL	Analyte conc. < RL
Dibromochloropropane	96-12-8	6.00E-03	6.63E+00		Analyte conc. < RL	Analyte conc. < RL
Dibromoethane, 1,2-	106-93-4	2.27E-02	1.15E+02		Analyte conc. < RL	Analyte conc. < RL
Dichloroethane, 1,1-	75-34-3	2.10E+00	1.40E+04		Analyte conc. < RL	Analyte conc. < RL
Dichloroethane, 1,2-	107-06-2	2.85E-01	4.95E+01		Analyte conc. < RL	Analyte conc. < RL
Dichloroethylene, cis 1,2-	156-59-2	NA	1.40E+02		No cancer RB-RSV	Analyte conc. < RL
Dichloroethylene, trans 1,2-	156-60-5	NA	1.40E+03		No cancer RB-RSV	Analyte conc. < RL
Dichloropropane, 1,2-	78-87-5	1.31E+00	2.63E+01		Analyte conc. < RL	Analyte conc. < RL
Dioxane, 1,4-	123-91-1	2.78E+00	1.05E+03		Analyte conc. < RL	Analyte conc. < RL
Ethylbenzene	100-41-4	3.68E+00	4.45E+02		Analyte conc. < RL	Analyte conc. < RL
Fluoranthene	206-44-0	NA	2.30E+03	2.50E-01	No cancer RB-RSV	1.09E-04
Fluorene	86-73-7	NA	2.30E+03		No cancer RB-RSV	Analyte conc. < RL
Hexachlorobenzene	118-74-1	1.31E-01	5.61E+01		Analyte conc. < RL	Analyte conc. < RL
Hexahydro-1,3,5-trinitro-1,3,5-triazine (RDX)	121-82-4	4.60E+00	2.90E+02		Analyte conc. < RL	Analyte conc. < RL
Hydrogen cyanide	74-90-9	NA	4.91E+01		No cancer RB-RSV	Analyte conc. < RL
Iron	7439-89-6	NA	5.13E+04		No cancer RB-RSV	Analyte conc. < RL
Isopropylbenzene (cumene)	98-82-8	NA	2.56E+02		No cancer RB-RSV	Analyte conc. < RL
Manganese (non-diet)	7439-96-5	NA	1.12E+03		No cancer RB-RSV	Analyte conc. < RL
Mercury (elemental)	7439-97-6	NA	3.13E+00		No cancer RB-RSV	Analyte conc. < RL
Methyl ethyl ketone	78-93-3	NA	1.70E+04		No cancer RB-RSV	Analyte conc. < RL
Methyl tert-butyl ether (MTBE)	1634-04-4	NA	6.49E+02		No cancer RB-RSV	Analyte conc. < RL
Molybdenum	7439-98-7	NA	3.66E+02		No cancer RB-RSV	Analyte conc. < RL
Naphthalene	91-20-3	2.72E+00	2.24E+02		Analyte conc. < RL	Analyte conc. < RL
Nickel	7440-02-0	5.23E+03	9.40E+02		Analyte conc. < RL	Analyte conc. < RL
(HNX)	2691-41-0	NA	3.70E+03		No cancer RB-RSV	Analyte conc. < RL
Pentachlorophenol	87-86-5	4.84E-01	2.37E+02		Analyte conc. < RL	Analyte conc. < RL
Pentaerythritol tetranitrate (PETN)	78-11-5	NA	1.22E+02		No cancer RB-RSV	Analyte conc. < RL
Perchlorate	14797-23-0	NA	5.13E+01		No cancer RB-RSV	Analyte conc. < RL
Perfluorheptanoic acid (PFHpA)	375-85-9	NA	1.22E+00		No cancer RB-RSV	Analyte conc. < RL
Perfluorohexane sulfonic acid (PFHxS)	355-46-4	NA	1.22E+00		No cancer RB-RSV	Analyte conc. < RL
Perfluorononanoic acid (PFNA)	375-95-1	NA	1.22E+00		No cancer RB-RSV	Analyte conc. < RL
Perfluorooctane sulfonic acid (PFOS)	1763-23-1	NA	1.22E+00		No cancer RB-RSV	Analyte conc. < RL
Perfluorooctanoic acid (PFOA)	335-67-1	3.96E+00	1.22E+00		Analyte conc. < RL	Analyte conc. < RL
Propoxur (Baygon)	114-26-1	7.88E+01	2.43E+02		Analyte conc. < RL	Analyte conc. < RL
Propyl benzene, n-	103-65-1	NA	2.53E+02		No cancer RB-RSV	Analyte conc. < RL
Selenium	7782-49-2	NA	3.66E+02		No cancer RB-RSV	Analyte conc. < RL
Silver	7440-22-4	NA	2.37E+02		No cancer RB-RSV	Analyte conc. < RL
Tetrachloroethane, 1,1,1,2-	630-20-6	1.32E+00	2.10E+03		Analyte conc. < RL	Analyte conc. < RL
Tetrachloroethylene	127-18-4	2.38E+00	1.13E+02		Analyte conc. < RL	Analyte conc. < RL
Thallium (soluble Thallium)	7440-28-0**	NA	7.33E-01		No cancer RB-RSV	Analyte conc. < RL
Toluene	108-88-3	NA	7.06E+02		No cancer RB-RSV	Analyte conc. < RL
Trichloroethylene	79-01-6	6.81E-01	6.21E+00		Analyte conc. < RL	Analyte conc. < RL
Trichloropropane, 1,2,3-	96-18-4	3.11E-03	8.67E+00		Analyte conc. < RL	Analyte conc. < RL
Trimethylbenzene, 1,2,3-	526-73-8	NA	2.06E+02		No cancer RB-RSV	Analyte conc. < RL
Trimethylbenzene, 1,2,4-	95-63-6	NA	1.66E+02		No cancer RB-RSV	Analyte conc. < RL
Trimethylbenzene, 1,3,5-	108-67-8	NA	1.44E+02		No cancer RB-RSV	Analyte conc. < RL
Trinitrotoluene, 2,4,6- (TNT)	118-96-7	1.15E+01	3.49E+01		Analyte conc. < RL	Analyte conc. < RL
Uranium (soluble salts)	NA	NA	4.40E+01		No cancer RB-RSV	Analyte conc. < RL
Vanadium	7440-62-2	NA	2.77E+00		No cancer RB-RSV	Analyte conc. < RL
Vinyl chloride	75-01-4	9.83E-02	8.51E+01		Analyte conc. < RL	Analyte conc. < RL
Xylenes	1330-20-7	NA	2.52E+02		No cancer RB-RSV	Analyte conc. < RL
Zinc	7440-66-6	NA	2.20E+04		No cancer RB-RSV	Analyte conc. < RL
				Sample Cumulative ILCR:	0.00E+00	Sample HI: 1.09E-04

Notes:

HI = Hazard Index (sum of Hazard Quotients)

HQ = Hazard Quotient

ILCR = Incremental Lifetime Cancer Risk

NA = Not Available

RB-RSV<sub>u</sub> = Risk-Based Residential Soil Value based on cancer

RB-RSV<sub>c</sub> = Risk-Based Residential Soil Value based on noncancer endpoint

\*- CAS Number for 2,3,7,8-TCDD

\*\* - CAS Number is for Metallic Thallium

c. The 2,3,7,8-TCDD TEQ row should include the sum of the concentrations of all dioxins, furans, and dioxin-like PCBs reported as 2,3,7,8-TCDD toxic equivalents.

d. The BaP-TE row should include the sum of the concentrations for all carcinogenic PAHs (including benzo(a)pyrene) reported as Benzo(a)pyrene toxic equivalents. See direction 6 for designated urban background locations.

e. Benzo(a)pyrene row should include only the concentration of benzo(a)pyrene in order to address its noncancer hazards.

f. The Total PCBs row should include the sum of the concentrations for all PCBs except dioxin-like PCBs. Dioxin-like PCBs should be included in the 2,3,7,8-TCDD TE concentration entry.

\*\*\*Read the directions, in their entirety, on the 'Directions' Tab before use.\*\*\*

sample information	Site Number:	2019-4863
	Site Name:	Pigeon Property
	Sample Number:	SB-123
	Sample Depth:	0-18"
	Sample Date:	6/8/22

1. Select chemicals from dropdown list				2. Input reported concentrations in mg/kg	3. View autocalculated ILCR and HQ associated with each individual chemical	
Analyte	CASRN	WB-RSV <sub>c</sub> (mg/kg)	RB-RSV <sub>r</sub> (mg/kg)	Sample Concentration (mg/kg)	Calculated Sample ILCR (unitless)	Calculated Sample HI (unitless)
2,3,7,8-TCDD TEQ <sup>a</sup>	1746-01-6 <sup>b</sup>	2.25E-06	4.91E-05		Analyte conc. < RL	Analyte conc. < RL
BaP-TE <sup>c</sup>	—	7.28E-02	NA		Analyte conc. < RL	No noncancer RB-RSV
Benzo(a)pyrene <sup>d</sup>	50-32-8	NA	1.72E+01		Included in BaP-TE	Analyte conc. < RL
Total PCBs <sup>e</sup>	1336-36-3	1.14E-01	1.13E+00		Analyte conc. < RL	Analyte conc. < RL
Acetamin	34256-82-1	NA	1.22E+03		No cancer RB-RSV	Analyte conc. < RL
Acetone	67-64-1	NA	4.06E+04		No cancer RB-RSV	Analyte conc. < RL
Alachlor	15972-60-8	NA	6.08E+01		No cancer RB-RSV	Analyte conc. < RL
Aldrin	309-00-2	2.02E-02	2.10E+00		Analyte conc. < RL	Analyte conc. < RL
Aluminum	7429-90-5	NA	7.25E+04		No cancer RB-RSV	Analyte conc. < RL
Antimony	7440-36-0	NA	2.60E+01		No cancer RB-RSV	Analyte conc. < RL
Barium	7440-39-3	NA	1.12E+04		No cancer RB-RSV	Analyte conc. < RL
Benzoyl	17804-33-2	1.16E+02	7.90E+02		Analyte conc. < RL	Analyte conc. < RL
Benzene	71-43-2	6.98E-01	1.11E+02		Analyte conc. < RL	Analyte conc. < RL
Beryllium	7440-41-7	5.67E+02	3.45E+01		Analyte conc. < RL	Analyte conc. < RL
Bis(2-chloro-1-methyl ethyl) ether	108-60-1	NA	2.80E+03		No cancer RB-RSV	Analyte conc. < RL
Boron	7440-42-8	NA	1.47E+04		No cancer RB-RSV	Analyte conc. < RL
Bromate	15541-45-4	5.36E-01	2.93E+02		Analyte conc. < RL	Analyte conc. < RL
Bromochloromethane	74-97-5	NA	1.93E+02		No cancer RB-RSV	Analyte conc. < RL
Bromobenzyl	1689-84-5	2.69E+00	9.12E+02		Analyte conc. < RL	Analyte conc. < RL
Butylbenzene, n-	104-51-8	NA	3.50E+03		No cancer RB-RSV	Analyte conc. < RL
Butylbenzene, sec-	135-98-8	NA	7.01E+03		No cancer RB-RSV	Analyte conc. < RL
Butylbenzene, tert-	98-06-6	NA	7.01E+03		No cancer RB-RSV	Analyte conc. < RL
Cadmium (food)	7440-43-9	7.56E+02	6.86E+00		Analyte conc. < RL	Analyte conc. < RL
Carbaryl	63-25-2	3.17E+02	6.08E+03		Analyte conc. < RL	Analyte conc. < RL
Carbon Disulfide	75-15-0	NA	6.08E+02		No cancer RB-RSV	Analyte conc. < RL
Carbon tetrachloride	56-23-5	3.72E-01	1.30E+02		Analyte conc. < RL	Analyte conc. < RL
Chlorobenzene	108-90-7	NA	4.14E+02		No cancer RB-RSV	Analyte conc. < RL
Chromium (III) (insoluble salts)	16065-83-1	NA	4.02E+04		No cancer RB-RSV	Analyte conc. < RL
Chromium (VI)	18540-29-9	9.06E-02	1.16E+02		Analyte conc. < RL	Analyte conc. < RL
Cobalt	7440-48-4	1.51E+02	2.19E+01		Analyte conc. < RL	Analyte conc. < RL
Copper	7440-50-8	NA	1.04E+04		No cancer RB-RSV	Analyte conc. < RL
Di (2-ethylhexyl) phthalate	117-81-7	1.98E+01	1.22E+03		Analyte conc. < RL	Analyte conc. < RL
Dibromochloropropane	96-12-8	6.00E-03	6.63E+00		Analyte conc. < RL	Analyte conc. < RL
Dibromoethane, 1,2-	106-93-4	2.27E-02	1.15E+02		Analyte conc. < RL	Analyte conc. < RL
Dichloroethane, 1,1-	75-34-3	2.10E+00	1.40E+04		Analyte conc. < RL	Analyte conc. < RL
Dichloroethane, 1,2-	107-06-2	2.85E-01	4.95E+01		Analyte conc. < RL	Analyte conc. < RL
Dichloroethylene, cis 1,2-	156-59-2	NA	1.40E+02		No cancer RB-RSV	Analyte conc. < RL
Dichloroethylene, trans 1,2-	156-60-5	NA	1.40E+03		No cancer RB-RSV	Analyte conc. < RL
Dichloropropane, 1,2-	78-87-5	1.51E+00	2.63E+01		Analyte conc. < RL	Analyte conc. < RL
Dioxane, 1,4-	123-91-1	2.78E+00	1.05E+03		Analyte conc. < RL	Analyte conc. < RL
Ethylbenzene	100-41-4	3.68E+00	4.45E+02		Analyte conc. < RL	Analyte conc. < RL
Fluoranthene	206-44-0	NA	2.30E+03	3.00E-01	No cancer RB-RSV	1.30E-04
Fluorene	86-73-7	NA	2.30E+03		No cancer RB-RSV	Analyte conc. < RL
Hexachlorobenzene	118-74-1	1.31E-01	5.61E+01		Analyte conc. < RL	Analyte conc. < RL
Hexahydro-1,3,5-trinitro-1,3,5-triazine (RDX)	121-82-4	4.60E+00	2.90E+02		Analyte conc. < RL	Analyte conc. < RL
Hydrogen cyanide	74-90-9	NA	4.91E+01		No cancer RB-RSV	Analyte conc. < RL
Iron	7439-89-6	NA	5.13E+04		No cancer RB-RSV	Analyte conc. < RL
Isopropylbenzene (cumene)	98-82-8	NA	2.56E+02		No cancer RB-RSV	Analyte conc. < RL
Manganese (non-diet)	7439-96-5	NA	1.12E+03		No cancer RB-RSV	Analyte conc. < RL
Mercury (elemental)	7439-97-6	NA	3.13E+00		No cancer RB-RSV	Analyte conc. < RL
Methyl ethyl ketone	78-93-3	NA	1.70E+04		No cancer RB-RSV	Analyte conc. < RL
Methyl tert-butyl ether (MTBE)	1634-04-4	NA	6.49E+02		No cancer RB-RSV	Analyte conc. < RL
Molybdenum	7439-98-7	NA	3.66E+02		No cancer RB-RSV	Analyte conc. < RL
Naphthalene	91-20-3	2.72E+00	2.24E+02		Analyte conc. < RL	Analyte conc. < RL
Nickel	7440-02-0	5.23E+03	9.40E+02		Analyte conc. < RL	Analyte conc. < RL
(HNX)	2691-41-0	NA	3.70E+03		No cancer RB-RSV	Analyte conc. < RL
Pentachlorophenol	87-86-5	4.84E-01	2.37E+02		Analyte conc. < RL	Analyte conc. < RL
Pentaerythritol tetranitrate (PETN)	78-11-5	NA	1.22E+02		No cancer RB-RSV	Analyte conc. < RL
Perchlorate	14797-23-0	NA	5.13E+01		No cancer RB-RSV	Analyte conc. < RL
Perfluorheptanoic acid (PFHpA)	375-85-9	NA	1.22E+00		No cancer RB-RSV	Analyte conc. < RL
Perfluorohexane sulfonic acid (PFHxS)	355-46-4	NA	1.22E+00		No cancer RB-RSV	Analyte conc. < RL
Perfluorononanoic acid (PFNA)	375-95-1	NA	1.22E+00		No cancer RB-RSV	Analyte conc. < RL
Perfluorooctane sulfonic acid (PFOS)	1763-23-1	NA	1.22E+00		No cancer RB-RSV	Analyte conc. < RL
Perfluorooctanoic acid (PFOA)	335-67-1	3.96E+00	1.22E+00		Analyte conc. < RL	Analyte conc. < RL
Propoxur (Baygon)	114-26-1	7.88E+01	2.43E+02		Analyte conc. < RL	Analyte conc. < RL
Propyl benzene, n-	103-65-1	NA	2.53E+02		No cancer RB-RSV	Analyte conc. < RL
Selenium	7782-49-2	NA	3.66E+02		No cancer RB-RSV	Analyte conc. < RL
Silver	7440-22-4	NA	2.37E+02		No cancer RB-RSV	Analyte conc. < RL
Tetrachloroethane, 1,1,1,2-	630-20-6	1.32E+00	2.10E+03		Analyte conc. < RL	Analyte conc. < RL
Tetrachloroethylene	127-18-4	2.38E+00	1.13E+02		Analyte conc. < RL	Analyte conc. < RL
Thallium (soluble Thallium)	7440-28-0 <sup>**</sup>	NA	7.33E-01		No cancer RB-RSV	Analyte conc. < RL
Toluene	108-88-3	NA	7.06E+02		No cancer RB-RSV	Analyte conc. < RL
Trichloroethylene	79-01-6	6.81E-01	6.21E+00		Analyte conc. < RL	Analyte conc. < RL
Trichloropropane, 1,2,3-	96-18-4	3.11E-03	8.67E+00		Analyte conc. < RL	Analyte conc. < RL
Trimethylbenzene, 1,2,3-	526-73-8	NA	2.06E+02		No cancer RB-RSV	Analyte conc. < RL
Trimethylbenzene, 1,2,4-	95-63-6	NA	1.66E+02		No cancer RB-RSV	Analyte conc. < RL
Trimethylbenzene, 1,3,5-	108-67-8	NA	1.44E+02		No cancer RB-RSV	Analyte conc. < RL
Trinitrotoluene, 2,4,6- (TNT)	118-96-7	1.15E+01	3.49E+01		Analyte conc. < RL	Analyte conc. < RL
Uranium (soluble salts)	NA	NA	4.40E+01		No cancer RB-RSV	Analyte conc. < RL
Vanadium	7440-62-2	NA	2.77E+00		No cancer RB-RSV	Analyte conc. < RL
Vinyl chloride	75-01-4	9.83E-02	8.51E+01		Analyte conc. < RL	Analyte conc. < RL
Xylenes	1330-20-7	NA	2.52E+02		No cancer RB-RSV	Analyte conc. < RL
Zinc	7440-66-6	NA	2.20E+04		No cancer RB-RSV	Analyte conc. < RL
a. RB-RSV <sub>c</sub> corresponds to a one-in-one-million ILCR. See RUEL Appendix E, Table 1.				Sample Cumulative ILCR:	0.00E+00	Sample HI: 1.30E-04
b. RB-RSV <sub>r</sub> corresponds to a HQ of 1 based on Hypothetical Young Child Resident scenario. See RUEL Appendix E, Table 1.						

Notes:

HI = Hazard Index (sum of Hazard Quotients)

HQ = Hazard Quotient

ILCR = Incremental Lifetime Cancer Risk

NA = Not Available

RB-RSV<sub>c</sub> = Risk-Based Residential Soil Value based on cancer

RB-RSV<sub>r</sub> = Risk-Based Residential Soil Value based on noncancer endpoint

\*- CAS Number for 2,3,7,8-TCDD

\*\* - CAS Number is for Metallic Thallium

c. The 2,3,7,8-TCDD TEQ row should include the sum of the concentrations of all dioxins, furans, and dioxin-like PCBs reported as 2,3,7,8-TCDD toxic equivalents.

d. The BaP-TE row should include the sum of the concentrations for all carcinogenic PAHs (including benzo(a)pyrene) reported as Benzo(a)pyrene toxic equivalents. See direction 6 for designated urban background locations.

e. Benzo(a)pyrene row should include only the concentration of benzo(a)pyrene in order to address its noncancer hazards.

f. The Total PCBs row should include the sum of the concentrations for all PCBs except dioxin-like PCBs. Dioxin-like PCBs should be included in the 2,3,7,8-TCDD TE concentration entry.

\*\*\*Read the directions, in their entirety, on the 'Directions' Tab before use.\*\*\*

sample information

Site Number:	2019-4863
Site Name:	Pigeon Property
Sample Number:	SB-124
Sample Depth:	0-18"
Sample Date:	6/8/22

1. Select chemicals from dropdown list

2. Input reported concentrations in mg/kg

3. View autocalculated ILCR and HQ associated with each individual chemical

Analyte	CASRN	RB-RSV <sub>c</sub> (mg/kg)	RB-RSV <sub>c</sub> (mg/kg)	Sample Concentration (mg/kg)	Calculated Sample ILCR (unitless)	Calculated Sample HQ (unitless)
2,3,7,8-TCDD TEQ <sup>a</sup>	1746-01-6 <sup>a</sup>	2.25E-06	4.91E-05		Analyte conc. < RL	Analyte conc. < RL
BaP-TE <sup>d</sup>	—	7.28E-02	NA		Analyte conc. < RL	No noncancer RB-RSV
Benzo(a)pyrene <sup>f</sup>	50-32-8	NA	1.72E+01		Included in BaP-TE	Analyte conc. < RL
Total PCBs <sup>g</sup>	1336-36-3	1.14E-01	1.13E+00		Analyte conc. < RL	Analyte conc. < RL
Acetamin	34256-82-1	NA	1.22E+03		No cancer RB-RSV	Analyte conc. < RL
Acetone	67-64-1	NA	4.06E+04		No cancer RB-RSV	Analyte conc. < RL
Alachlor	15972-60-8	NA	6.08E+01		No cancer RB-RSV	Analyte conc. < RL
Aldrin	309-00-2	2.02E-02	2.10E+00		Analyte conc. < RL	Analyte conc. < RL
Aluminum	7429-90-5	NA	7.75E+04		No cancer RB-RSV	Analyte conc. < RL
Antimony	7440-36-0	NA	2.60E+01		No cancer RB-RSV	Analyte conc. < RL
Barium	7440-39-3	NA	1.12E+04		No cancer RB-RSV	Analyte conc. < RL
Benzoyl	17804-33-2	1.16E+02	7.90E+02		Analyte conc. < RL	Analyte conc. < RL
Benzene	71-43-2	6.98E-01	1.11E+02		Analyte conc. < RL	Analyte conc. < RL
Beryllium	7440-41-7	5.67E+02	3.45E+01		Analyte conc. < RL	Analyte conc. < RL
Bis(2-chloro-1-methyl ethyl) ether	108-60-1	NA	2.80E+03		No cancer RB-RSV	Analyte conc. < RL
Boron	7440-42-8	NA	1.47E+04		No cancer RB-RSV	Analyte conc. < RL
Bromate	15541-45-4	5.36E-01	2.93E+02		Analyte conc. < RL	Analyte conc. < RL
Bromochloromethane	74-97-5	NA	1.93E+02		No cancer RB-RSV	Analyte conc. < RL
Bromobenzyl	1689-84-5	2.69E+00	9.12E+02		Analyte conc. < RL	Analyte conc. < RL
Butylbenzene, n-	104-51-8	NA	3.50E+03		No cancer RB-RSV	Analyte conc. < RL
Butylbenzene, sec-	135-98-8	NA	7.01E+03		No cancer RB-RSV	Analyte conc. < RL
Butylbenzene, tert-	98-06-6	NA	7.01E+03		No cancer RB-RSV	Analyte conc. < RL
Cadmium (food)	7440-43-9	7.56E+02	6.86E+00		Analyte conc. < RL	Analyte conc. < RL
Carbaryl	63-25-2	3.17E+02	6.08E+03		Analyte conc. < RL	Analyte conc. < RL
Carbon Disulfide	75-15-0	NA	6.08E+02		No cancer RB-RSV	Analyte conc. < RL
Carbon tetrachloride	56-23-5	3.72E-01	1.30E+02		Analyte conc. < RL	Analyte conc. < RL
Chlorobenzene	108-90-7	NA	4.14E+02		No cancer RB-RSV	Analyte conc. < RL
Chromium (III) (insoluble salts)	16065-83-1	NA	4.02E+04		No cancer RB-RSV	Analyte conc. < RL
Chromium (VI)	18540-29-9	9.06E-02	1.16E+02		Analyte conc. < RL	Analyte conc. < RL
Cobalt	7440-48-4	1.51E+02	2.19E+01		Analyte conc. < RL	Analyte conc. < RL
Copper	7440-50-8	NA	1.04E+04		No cancer RB-RSV	Analyte conc. < RL
Di (2-ethylhexyl) phthalate	117-81-7	1.98E+01	1.22E+03		Analyte conc. < RL	Analyte conc. < RL
Dibromochloropropane	96-12-8	6.00E-03	6.63E+00		Analyte conc. < RL	Analyte conc. < RL
Dibromoethane, 1,2-	106-93-4	2.27E-02	1.15E+02		Analyte conc. < RL	Analyte conc. < RL
Dichloroethane, 1,1-	75-34-3	2.10E+00	1.40E+04		Analyte conc. < RL	Analyte conc. < RL
Dichloroethane, 1,2-	107-06-2	2.85E-01	4.95E+01		Analyte conc. < RL	Analyte conc. < RL
Dichloroethylene, cis 1,2-	156-59-2	NA	1.40E+02		No cancer RB-RSV	Analyte conc. < RL
Dichloroethylene, trans 1,2-	156-60-5	NA	1.40E+03		No cancer RB-RSV	Analyte conc. < RL
Dichloropropane, 1,2-	78-87-5	1.31E+00	2.63E+01		Analyte conc. < RL	Analyte conc. < RL
Dioxane, 1,4-	123-91-1	2.78E+00	1.05E+03		Analyte conc. < RL	Analyte conc. < RL
Ethylbenzene	100-41-4	3.68E+00	4.45E+02		Analyte conc. < RL	Analyte conc. < RL
Fluoranthene	206-44-0	NA	2.30E+03	1.50E-01	No cancer RB-RSV	6.52E-05
Fluorene	86-73-7	NA	2.30E+03	8.70E-03	No cancer RB-RSV	3.78E-06
Hexachlorobenzene	118-74-1	1.31E-01	5.61E+01		Analyte conc. < RL	Analyte conc. < RL
Hexahydro-1,3,5-trinitro-1,3,5-triazine (RDX)	121-82-4	4.60E+00	2.90E+02		Analyte conc. < RL	Analyte conc. < RL
Hydrogen cyanide	74-90-9	NA	4.91E+01		No cancer RB-RSV	Analyte conc. < RL
Iron	7439-89-6	NA	5.13E+04		No cancer RB-RSV	Analyte conc. < RL
Isopropylbenzene (cumene)	98-82-8	NA	2.56E+02		No cancer RB-RSV	Analyte conc. < RL
Manganese (non-diet)	7439-96-5	NA	1.12E+03		No cancer RB-RSV	Analyte conc. < RL
Mercury (elemental)	7439-97-6	NA	3.13E+00		No cancer RB-RSV	Analyte conc. < RL
Methyl ethyl ketone	78-93-3	NA	1.70E+04		No cancer RB-RSV	Analyte conc. < RL
Methyl tert-butyl ether (MTBE)	1634-04-4	NA	6.49E+02		No cancer RB-RSV	Analyte conc. < RL
Molybdenum	7439-98-7	NA	3.66E+02		No cancer RB-RSV	Analyte conc. < RL
Naphthalene	91-20-3	2.72E+00	2.24E+02		Analyte conc. < RL	Analyte conc. < RL
Nickel	7440-02-0	5.23E+03	9.40E+02		Analyte conc. < RL	Analyte conc. < RL
(HMX)	2691-41-0	NA	3.70E+03		No cancer RB-RSV	Analyte conc. < RL
Pentachlorophenol	87-86-5	4.84E-01	2.37E+02		Analyte conc. < RL	Analyte conc. < RL
Pentaerythritol tetranitrate (PETN)	78-11-5	NA	1.22E+02		No cancer RB-RSV	Analyte conc. < RL
Perchlorate	14797-23-0	NA	5.13E+01		No cancer RB-RSV	Analyte conc. < RL
Perfluorheptanoic acid (PFHpA)	375-85-9	NA	1.22E+00		No cancer RB-RSV	Analyte conc. < RL
Perfluorohexane sulfonic acid (PFHxS)	355-46-4	NA	1.22E+00		No cancer RB-RSV	Analyte conc. < RL
Perfluorononanoic acid (PFNA)	375-95-1	NA	1.22E+00		No cancer RB-RSV	Analyte conc. < RL
Perfluorooctane sulfonic acid (PFOS)	1763-23-1	NA	1.22E+00		No cancer RB-RSV	Analyte conc. < RL
Perfluorooctanoic acid (PFOA)	335-67-1	3.96E+00	1.22E+00		Analyte conc. < RL	Analyte conc. < RL
Propoxur (Baygon)	114-26-1	7.88E+01	2.43E+02		Analyte conc. < RL	Analyte conc. < RL
Propyl benzene, n-	103-65-1	NA	2.53E+02		No cancer RB-RSV	Analyte conc. < RL
Selenium	7782-49-2	NA	3.66E+02		No cancer RB-RSV	Analyte conc. < RL
Silver	7440-22-4	NA	2.37E+02		No cancer RB-RSV	Analyte conc. < RL
Tetrachloroethane, 1,1,1,2-	630-20-6	1.32E+00	2.10E+03		Analyte conc. < RL	Analyte conc. < RL
Tetrachloroethylene	127-18-4	2.38E+00	1.13E+02		Analyte conc. < RL	Analyte conc. < RL
Thallium (soluble Thallium)	7440-28-0**	NA	7.33E-01		No cancer RB-RSV	Analyte conc. < RL
Toluene	108-88-3	NA	7.06E+02		No cancer RB-RSV	Analyte conc. < RL
Trichloroethylene	79-01-6	6.81E-01	6.21E+00		Analyte conc. < RL	Analyte conc. < RL
Trichloropropane, 1,2,3-	96-18-4	3.11E-03	8.67E+00		Analyte conc. < RL	Analyte conc. < RL
Trimethylbenzene, 1,2,3-	526-73-8	NA	2.06E+02		No cancer RB-RSV	Analyte conc. < RL
Trimethylbenzene, 1,2,4-	95-63-6	NA	1.66E+02		No cancer RB-RSV	Analyte conc. < RL
Trimethylbenzene, 1,3,5-	108-67-8	NA	1.44E+02		No cancer RB-RSV	Analyte conc. < RL
Trinitrotoluene, 2,4,6- (TNT)	118-96-7	1.15E+01	3.49E+01		Analyte conc. < RL	Analyte conc. < RL
Uranium (soluble salts)	NA	NA	4.40E+01		No cancer RB-RSV	Analyte conc. < RL
Vanadium	7440-62-2	NA	2.77E+00		No cancer RB-RSV	Analyte conc. < RL
Vinyl chloride	75-01-4	9.83E-02	8.51E+01		Analyte conc. < RL	Analyte conc. < RL
Xylenes	1330-20-7	NA	2.52E+02		No cancer RB-RSV	Analyte conc. < RL
Zinc	7440-66-6	NA	2.20E+04		No cancer RB-RSV	Analyte conc. < RL
				Sample Cumulative ILCR:	0.00E+00	Sample HI: 6.90E-05

Notes:  
HI = Hazard Index (sum of Hazard Quotients)  
HQ = Hazard Quotient  
ILCR = Incremental Lifetime Cancer Risk  
NA = Not Available  
RB-RSV<sub>c</sub> = Risk-Based Residential Soil Value based on cancer  
RB-RSV<sub>n</sub> = Risk-Based Residential Soil Value based on noncancer endpoint  
\* - CAS Number for 2,3,7,8-TCDD  
\*\* - CAS Number is for Metallic Thallium

c. The 2,3,7,8-TCDD TEQ row should include the sum of the concentrations of all dioxins, furans, and dioxin-like PCBs reported as 2,3,7,8-TCDD toxic equivalents.  
d. The BaP-TE row should include the sum of the concentrations for all carcinogenic PAHs (including benzo(a)pyrene) reported as Benzo(a)pyrene toxic equivalents. See direction 6 for designated urban background locations.  
e. Benzo(a)pyrene row should include only the concentration of benzo(a)pyrene in order to address its noncancer hazards.  
f. The Total PCBs row should include the sum of the concentrations for all PCBs except dioxin-like PCBs. Dioxin-like PCBs should be included in the 2,3,7,8-TCDD TE concentration entry.

\*\*\*Read the directions, in their entirety, on the 'Directions' Tab before use.\*\*\*

sample information

Site Number:	2019-4863
Site Name:	Pigeon Property
Sample Number:	SB-125
Sample Depth:	0-18"
Sample Date:	6/8/22

1. Select chemicals from dropdown list

2. Input reported concentrations in mg/kg

3. View autocalculated ILCR and HQ associated with each individual chemical

Analyte	CASRN	RB-RSV <sub>c</sub> (mg/kg)	RB-RSV <sub>d</sub> (mg/kg)	Sample Concentration (mg/kg)	Calculated Sample ILCR (unitless)	Calculated Sample HQ (unitless)
2,3,7,8-TCDD TEQ <sup>f</sup>	1746-01-6 <sup>a</sup>	2.25E-06	4.91E-05		Analyte conc. < RL	Analyte conc. < RL
BaP-TE <sup>g</sup>	—	7.28E-02	NA		Analyte conc. < RL	No noncancer RB-RSV
Benzo(a)pyrene <sup>h</sup>	50-32-8	NA	1.72E+01		Included in BaP-TE	Analyte conc. < RL
Total PCBs <sup>i</sup>	1336-36-3	1.14E-01	1.13E+00		Analyte conc. < RL	Analyte conc. < RL
Acetamin	34256-82-1	NA	1.22E+03		No cancer RB-RSV	Analyte conc. < RL
Acetone	67-64-1	NA	4.06E+04		No cancer RB-RSV	Analyte conc. < RL
Alachlor	15972-60-8	NA	6.08E+01		No cancer RB-RSV	Analyte conc. < RL
Aldrin	309-00-2	2.02E-02	2.10E+00		Analyte conc. < RL	Analyte conc. < RL
Aluminum	7429-90-5	NA	7.25E+04		No cancer RB-RSV	Analyte conc. < RL
Antimony	7440-36-0	NA	2.60E+01		No cancer RB-RSV	Analyte conc. < RL
Barium	7440-39-3	NA	1.12E+04		No cancer RB-RSV	Analyte conc. < RL
Benzoyl	17804-33-2	1.16E+02	7.90E+02		Analyte conc. < RL	Analyte conc. < RL
Benzene	71-43-2	6.98E-01	1.11E+02		Analyte conc. < RL	Analyte conc. < RL
Beryllium	7440-41-7	5.67E+02	3.45E+01		Analyte conc. < RL	Analyte conc. < RL
Bis(2-chloro-1-methyl ethyl) ether	108-60-1	NA	2.80E+03		No cancer RB-RSV	Analyte conc. < RL
Boron	7440-42-8	NA	1.47E+04		No cancer RB-RSV	Analyte conc. < RL
Bromate	15541-45-4	5.36E-01	2.93E+02		Analyte conc. < RL	Analyte conc. < RL
Bromochloromethane	74-97-5	NA	1.93E+02		No cancer RB-RSV	Analyte conc. < RL
Bromobenzyl	1689-84-5	2.69E+00	9.12E+02		Analyte conc. < RL	Analyte conc. < RL
Butylbenzene, n-	104-51-8	NA	3.50E+03		No cancer RB-RSV	Analyte conc. < RL
Butylbenzene, sec-	135-98-8	NA	7.01E+03		No cancer RB-RSV	Analyte conc. < RL
Butylbenzene, tert-	98-06-6	NA	7.01E+03		No cancer RB-RSV	Analyte conc. < RL
Cadmium (food)	7440-43-9	7.56E+02	6.86E+00		Analyte conc. < RL	Analyte conc. < RL
Carbaryl	63-25-2	3.17E+02	6.08E+03		Analyte conc. < RL	Analyte conc. < RL
Carbon Disulfide	75-15-0	NA	6.08E+02		No cancer RB-RSV	Analyte conc. < RL
Carbon tetrachloride	56-23-5	3.72E-01	1.30E+02		Analyte conc. < RL	Analyte conc. < RL
Chlorobenzene	108-90-7	NA	4.14E+02		No cancer RB-RSV	Analyte conc. < RL
Chromium (III) (insoluble salts)	16065-83-1	NA	4.02E+04		No cancer RB-RSV	Analyte conc. < RL
Chromium (VI)	18540-29-9	9.06E-02	1.16E+02		Analyte conc. < RL	Analyte conc. < RL
Cobalt	7440-48-4	1.51E+02	2.19E+01		Analyte conc. < RL	Analyte conc. < RL
Copper	7440-50-8	NA	1.04E+04		No cancer RB-RSV	Analyte conc. < RL
Di (2-ethylhexyl) phthalate	117-81-7	1.98E+01	1.22E+03		Analyte conc. < RL	Analyte conc. < RL
Dibromochloropropane	96-12-8	6.00E-03	6.63E+00		Analyte conc. < RL	Analyte conc. < RL
Dibromoethane, 1,2-	106-93-4	2.27E-02	1.15E+02		Analyte conc. < RL	Analyte conc. < RL
Dichloroethane, 1,1-	75-34-3	2.10E+00	1.40E+04		Analyte conc. < RL	Analyte conc. < RL
Dichloroethane, 1,2-	107-06-2	2.85E-01	4.95E+01		Analyte conc. < RL	Analyte conc. < RL
Dichloroethylene, cis 1,2-	156-59-2	NA	1.40E+02		No cancer RB-RSV	Analyte conc. < RL
Dichloroethylene, trans 1,2-	156-60-5	NA	1.40E+03		No cancer RB-RSV	Analyte conc. < RL
Dichloropropane, 1,2-	78-87-5	1.31E+00	2.63E+01		Analyte conc. < RL	Analyte conc. < RL
Dioxane, 1,4-	123-91-1	2.78E+00	1.05E+03		Analyte conc. < RL	Analyte conc. < RL
Ethylbenzene	100-41-4	3.68E+00	4.45E+02		Analyte conc. < RL	Analyte conc. < RL
Fluoranthene	206-44-0	NA	2.30E+03	4.20E-02	No cancer RB-RSV	1.83E-05
Fluorene	86-73-7	NA	2.30E+03		No cancer RB-RSV	Analyte conc. < RL
Hexachlorobenzene	118-74-1	1.31E-01	5.61E+01		Analyte conc. < RL	Analyte conc. < RL
Hexahydro-1,3,5-trinitro-1,3,5-triazine (RDX)	121-82-4	4.60E+00	2.90E+02		Analyte conc. < RL	Analyte conc. < RL
Hydrogen cyanide	74-90-9	NA	4.91E+01		No cancer RB-RSV	Analyte conc. < RL
Iron	7439-89-6	NA	5.13E+04		No cancer RB-RSV	Analyte conc. < RL
Isopropylbenzene (cumene)	98-82-8	NA	2.56E+02		No cancer RB-RSV	Analyte conc. < RL
Manganese (non-diet)	7439-96-5	NA	1.12E+03		No cancer RB-RSV	Analyte conc. < RL
Mercury (elemental)	7439-97-6	NA	3.13E+00		No cancer RB-RSV	Analyte conc. < RL
Methyl ethyl ketone	78-93-3	NA	1.70E+04		No cancer RB-RSV	Analyte conc. < RL
Methyl tert-butyl ether (MTBE)	1634-04-4	NA	6.49E+02		No cancer RB-RSV	Analyte conc. < RL
Molybdenum	7439-98-7	NA	3.66E+02		No cancer RB-RSV	Analyte conc. < RL
Naphthalene	91-20-3	2.72E+00	2.24E+02		Analyte conc. < RL	Analyte conc. < RL
Nickel	7440-02-0	5.23E+03	9.40E+02		Analyte conc. < RL	Analyte conc. < RL
(HMX)	2691-41-0	NA	3.70E+03		No cancer RB-RSV	Analyte conc. < RL
Pentachlorophenol	87-86-5	4.84E-01	2.37E+02		Analyte conc. < RL	Analyte conc. < RL
Pentaerythritol tetranitrate (PETN)	78-11-5	NA	1.22E+02		No cancer RB-RSV	Analyte conc. < RL
Perchlorate	14797-23-0	NA	5.13E+01		No cancer RB-RSV	Analyte conc. < RL
Perfluorheptanoic acid (PFHpA)	375-85-9	NA	1.22E+00		No cancer RB-RSV	Analyte conc. < RL
Perfluorohexane sulfonic acid (PFHxS)	355-46-4	NA	1.22E+00		No cancer RB-RSV	Analyte conc. < RL
Perfluorononanoic acid (PFNA)	375-95-1	NA	1.22E+00		No cancer RB-RSV	Analyte conc. < RL
Perfluorooctane sulfonic acid (PFOS)	1763-23-1	NA	1.22E+00		No cancer RB-RSV	Analyte conc. < RL
Perfluorooctanoic acid (PFOA)	335-67-1	3.96E+00	1.22E+00		Analyte conc. < RL	Analyte conc. < RL
Propoxur (Baygon)	114-26-1	7.88E+01	2.43E+02		Analyte conc. < RL	Analyte conc. < RL
Propyl benzene, n-	103-65-1	NA	2.53E+02		No cancer RB-RSV	Analyte conc. < RL
Selenium	7782-49-2	NA	3.66E+02		No cancer RB-RSV	Analyte conc. < RL
Silver	7440-22-4	NA	2.37E+02		No cancer RB-RSV	Analyte conc. < RL
Tetrachloroethane, 1,1,1,2-	630-20-6	1.32E+00	2.10E+03		Analyte conc. < RL	Analyte conc. < RL
Tetrachloroethylene	127-18-4	2.38E+00	1.13E+02		Analyte conc. < RL	Analyte conc. < RL
Thallium (soluble Thallium)	7440-28-0**	NA	7.33E-01		No cancer RB-RSV	Analyte conc. < RL
Toluene	108-88-3	NA	7.06E+02		No cancer RB-RSV	Analyte conc. < RL
Trichloroethylene	79-01-6	6.81E-01	6.21E+00		Analyte conc. < RL	Analyte conc. < RL
Trichloropropane, 1,2,3-	96-18-4	3.11E-03	8.67E+00		Analyte conc. < RL	Analyte conc. < RL
Trimethylbenzene, 1,2,3-	526-73-8	NA	2.06E+02		No cancer RB-RSV	Analyte conc. < RL
Trimethylbenzene, 1,2,4-	95-63-6	NA	1.66E+02		No cancer RB-RSV	Analyte conc. < RL
Trimethylbenzene, 1,3,5-	108-67-8	NA	1.44E+02		No cancer RB-RSV	Analyte conc. < RL
Trinitrotoluene, 2,4,6- (TNT)	118-96-7	1.15E+01	3.49E+01		Analyte conc. < RL	Analyte conc. < RL
Uranium (soluble salts)	NA	NA	4.40E+01		No cancer RB-RSV	Analyte conc. < RL
Vanadium	7440-62-2	NA	2.77E+00		No cancer RB-RSV	Analyte conc. < RL
Vinyl chloride	75-01-4	9.83E-02	8.51E+01		Analyte conc. < RL	Analyte conc. < RL
Xylenes	1330-20-7	NA	2.52E+02		No cancer RB-RSV	Analyte conc. < RL
Zinc	7440-66-6	NA	2.20E+04		No cancer RB-RSV	Analyte conc. < RL
				Sample Cumulative ILCR:	0.00E+00	Sample HI: 1.83E-05

Notes:

HI = Hazard Index (sum of Hazard Quotients)

HQ = Hazard Quotient

ILCR = Incremental Lifetime Cancer Risk

NA = Not Available

RB-RSV<sub>c</sub> = Risk-Based Residential Soil Value based on cancer

RB-RSV<sub>d</sub> = Risk-Based Residential Soil Value based on noncancer endpoint

\*- CAS Number for 2,3,7,8-TCDD

\*\* - CAS Number is for Metallic Thallium

c. The 2,3,7,8-TCDD TEQ row should include the sum of the concentrations of all dioxins, furans, and dioxin-like PCBs reported as 2,3,7,8-TCDD toxic equivalents.

d. The BaP-TE row should include the sum of the concentrations for all carcinogenic PAHs (including benzo(a)pyrene) reported as Benzo(a)pyrene toxic equivalents. See direction 6 for designated urban background locations.

e. Benzo(a)pyrene row should include only the concentration of benzo(a)pyrene in order to address its noncancer hazards.

f. The Total PCBs row should include the sum of the concentrations for all PCBs except dioxin-like PCBs. Dioxin-like PCBs should be included in the 2,3,7,8-TCDD TE concentration entry.

\*\*\*Read the directions, in their entirety, on the 'Directions' Tab before use.\*\*\*

sample information

Site Number:	2019-4863
Site Name:	Pigeon Property
Sample Number:	SB-126
Sample Depth:	0-18"
Sample Date:	6/8/22

1. Select chemicals from dropdown list

2. Input reported concentrations in mg/kg

3. View autocalculated ILCR and HQ associated with each individual chemical

Analyte	CASRN	RB-RSV <sub>u</sub> (mg/kg)	RB-RSV <sub>c</sub> (mg/kg)	Sample Concentration (mg/kg)	Calculated Sample ILCR (unitless)	Calculated Sample HQ (unitless)
2,3,7,8-TCDD TEQ <sup>a</sup>	1746-01-6 <sup>b</sup>	2.25E-06	4.91E-05		Analyte conc. < RL	Analyte conc. < RL
BaP-TE <sup>c</sup>	—	7.28E-02	NA		Analyte conc. < RL	No noncancer RB-RSV
Benzo(a)pyrene <sup>d</sup>	50-32-8	NA	1.72E+01		Included in BaP-TE	Analyte conc. < RL
Total PCBs <sup>e</sup>	1336-36-3	1.14E-01	1.13E+00		Analyte conc. < RL	Analyte conc. < RL
Acetamin	34256-82-1	NA	1.22E+03		No cancer RB-RSV	Analyte conc. < RL
Acetone	67-64-1	NA	4.06E+04		No cancer RB-RSV	Analyte conc. < RL
Alachlor	15972-60-8	NA	6.08E+01		No cancer RB-RSV	Analyte conc. < RL
Aldrin	309-00-2	2.02E-02	2.10E+00		Analyte conc. < RL	Analyte conc. < RL
Aluminum	7429-90-5	NA	7.25E+04		No cancer RB-RSV	Analyte conc. < RL
Antimony	7440-36-0	NA	2.60E+01		No cancer RB-RSV	Analyte conc. < RL
Barium	7440-39-3	NA	1.12E+04		No cancer RB-RSV	Analyte conc. < RL
Benzoyl	17804-33-2	1.16E+02	7.90E+02		Analyte conc. < RL	Analyte conc. < RL
Benzene	71-43-2	6.98E-01	1.11E+02		Analyte conc. < RL	Analyte conc. < RL
Beryllium	7440-41-7	5.67E+02	3.45E+01		Analyte conc. < RL	Analyte conc. < RL
Bis(2-chloro-1-methyl ethyl) ether	108-60-1	NA	2.80E+03		No cancer RB-RSV	Analyte conc. < RL
Boron	7440-42-8	NA	1.47E+04		No cancer RB-RSV	Analyte conc. < RL
Bromate	15541-45-4	5.36E-01	2.93E+02		Analyte conc. < RL	Analyte conc. < RL
Bromochloromethane	74-97-5	NA	1.93E+02		No cancer RB-RSV	Analyte conc. < RL
Bromobenzyl	1689-84-5	2.69E+00	9.12E+02		Analyte conc. < RL	Analyte conc. < RL
Butylbenzene, n-	104-51-8	NA	3.50E+03		No cancer RB-RSV	Analyte conc. < RL
Butylbenzene, sec-	135-98-8	NA	7.01E+03		No cancer RB-RSV	Analyte conc. < RL
Butylbenzene, tert-	98-06-6	NA	7.01E+03		No cancer RB-RSV	Analyte conc. < RL
Cadmium (food)	7440-43-9	7.56E+02	6.86E+00		Analyte conc. < RL	Analyte conc. < RL
Carbaryl	63-25-2	3.17E+02	6.08E+03		Analyte conc. < RL	Analyte conc. < RL
Carbon Disulfide	75-15-0	NA	6.08E+02		No cancer RB-RSV	Analyte conc. < RL
Carbon tetrachloride	56-23-5	3.72E-01	1.30E+02		Analyte conc. < RL	Analyte conc. < RL
Chlorobenzene	108-90-7	NA	4.14E+02		No cancer RB-RSV	Analyte conc. < RL
Chromium (III) (insoluble salts)	16065-83-1	NA	4.02E+04		No cancer RB-RSV	Analyte conc. < RL
Chromium (VI)	18540-29-9	9.06E-02	1.16E+02		Analyte conc. < RL	Analyte conc. < RL
Cobalt	7440-48-4	1.51E+02	2.19E+01		Analyte conc. < RL	Analyte conc. < RL
Copper	7440-50-8	NA	1.04E+04		No cancer RB-RSV	Analyte conc. < RL
Di (2-ethylhexyl) phthalate	117-81-7	1.98E+01	1.22E+03		Analyte conc. < RL	Analyte conc. < RL
Dibromochloropropane	96-12-8	6.00E-03	6.63E+00		Analyte conc. < RL	Analyte conc. < RL
Dibromoethane, 1,2-	106-93-4	2.27E-02	1.15E+02		Analyte conc. < RL	Analyte conc. < RL
Dichloroethane, 1,1-	75-34-3	2.10E+00	1.40E+04		Analyte conc. < RL	Analyte conc. < RL
Dichloroethane, 1,2-	107-06-2	2.85E-01	4.95E+01		Analyte conc. < RL	Analyte conc. < RL
Dichloroethylene, cis 1,2-	156-59-2	NA	1.40E+02		No cancer RB-RSV	Analyte conc. < RL
Dichloroethylene, trans 1,2-	156-60-5	NA	1.40E+03		No cancer RB-RSV	Analyte conc. < RL
Dichloropropane, 1,2-	78-87-5	1.31E+00	2.63E+01		Analyte conc. < RL	Analyte conc. < RL
Dioxane, 1,4-	123-91-1	2.78E+00	1.05E+03		Analyte conc. < RL	Analyte conc. < RL
Ethylbenzene	100-41-4	3.68E+00	4.45E+02		Analyte conc. < RL	Analyte conc. < RL
Fluoranthene	206-44-0	NA	2.30E+03	5.10E-02	No cancer RB-RSV	2.22E-05
Fluorene	86-73-7	NA	2.30E+03		No cancer RB-RSV	Analyte conc. < RL
Hexachlorobenzene	118-74-1	1.31E-01	5.61E+01		Analyte conc. < RL	Analyte conc. < RL
Hexahydro-1,3,5-trinitro-1,3,5-triazine (RDX)	121-82-4	4.60E+00	2.90E+02		Analyte conc. < RL	Analyte conc. < RL
Hydrogen cyanide	74-90-9	NA	4.91E+01		No cancer RB-RSV	Analyte conc. < RL
Iron	7439-89-6	NA	5.13E+04		No cancer RB-RSV	Analyte conc. < RL
Isopropylbenzene (cumene)	98-82-8	NA	2.56E+02		No cancer RB-RSV	Analyte conc. < RL
Manganese (non-diet)	7439-96-5	NA	1.12E+03		No cancer RB-RSV	Analyte conc. < RL
Mercury (elemental)	7439-97-6	NA	3.13E+00		No cancer RB-RSV	Analyte conc. < RL
Methyl ethyl ketone	78-93-3	NA	1.70E+04		No cancer RB-RSV	Analyte conc. < RL
Methyl tert-butyl ether (MTBE)	1634-04-4	NA	6.49E+02		No cancer RB-RSV	Analyte conc. < RL
Molybdenum	7439-98-7	NA	3.66E+02		No cancer RB-RSV	Analyte conc. < RL
Naphthalene	91-20-3	2.72E+00	2.24E+02		Analyte conc. < RL	Analyte conc. < RL
Nickel	7440-02-0	5.23E+03	9.40E+02		Analyte conc. < RL	Analyte conc. < RL
(HMX)	2691-41-0	NA	3.70E+03		No cancer RB-RSV	Analyte conc. < RL
Pentachlorophenol	87-86-5	4.84E-01	2.37E+02		Analyte conc. < RL	Analyte conc. < RL
Pentaerythritol tetranitrate (PETN)	78-11-5	NA	1.22E+02		No cancer RB-RSV	Analyte conc. < RL
Perchlorate	14797-23-0	NA	5.13E+01		No cancer RB-RSV	Analyte conc. < RL
Perfluorheptanoic acid (PFHpA)	375-85-9	NA	1.22E+00		No cancer RB-RSV	Analyte conc. < RL
Perfluorohexane sulfonic acid (PFHxS)	355-46-4	NA	1.22E+00		No cancer RB-RSV	Analyte conc. < RL
Perfluorononanoic acid (PFNA)	375-95-1	NA	1.22E+00		No cancer RB-RSV	Analyte conc. < RL
Perfluorooctane sulfonic acid (PFOS)	1763-23-1	NA	1.22E+00		No cancer RB-RSV	Analyte conc. < RL
Perfluorooctanoic acid (PFOA)	335-67-1	3.96E+00	1.22E+00		Analyte conc. < RL	Analyte conc. < RL
Propoxur (Baygon)	114-26-1	7.88E+01	2.43E+02		Analyte conc. < RL	Analyte conc. < RL
Propyl benzene, n-	103-65-1	NA	2.53E+02		No cancer RB-RSV	Analyte conc. < RL
Selenium	7782-49-2	NA	3.66E+02		No cancer RB-RSV	Analyte conc. < RL
Silver	7440-22-4	NA	2.37E+02		No cancer RB-RSV	Analyte conc. < RL
Tetrachloroethane, 1,1,1,2-	630-20-6	1.32E+00	2.10E+03		Analyte conc. < RL	Analyte conc. < RL
Tetrachloroethylene	127-18-4	2.38E+00	1.13E+02		Analyte conc. < RL	Analyte conc. < RL
Thallium (soluble Thallium)	7440-28-0**	NA	7.33E-01		No cancer RB-RSV	Analyte conc. < RL
Toluene	108-88-3	NA	7.06E+02		No cancer RB-RSV	Analyte conc. < RL
Trichloroethylene	79-01-6	6.81E-01	6.21E+00		Analyte conc. < RL	Analyte conc. < RL
Trichloropropane, 1,2,3-	96-18-4	3.11E-03	8.67E+00		Analyte conc. < RL	Analyte conc. < RL
Trimethylbenzene, 1,2,3-	526-73-8	NA	2.06E+02		No cancer RB-RSV	Analyte conc. < RL
Trimethylbenzene, 1,2,4-	95-63-6	NA	1.66E+02		No cancer RB-RSV	Analyte conc. < RL
Trimethylbenzene, 1,3,5-	108-67-8	NA	1.44E+02		No cancer RB-RSV	Analyte conc. < RL
Trinitrotoluene, 2,4,6- (TNT)	118-96-7	1.15E+01	3.49E+01		Analyte conc. < RL	Analyte conc. < RL
Uranium (soluble salts)	NA	NA	4.40E+01		No cancer RB-RSV	Analyte conc. < RL
Vanadium	7440-62-2	NA	2.77E+00		No cancer RB-RSV	Analyte conc. < RL
Vinyl chloride	75-01-4	9.83E-02	8.51E+01		Analyte conc. < RL	Analyte conc. < RL
Xylenes	1330-20-7	NA	2.52E+02		No cancer RB-RSV	Analyte conc. < RL
Zinc	7440-66-6	NA	2.20E+04		No cancer RB-RSV	Analyte conc. < RL
				Sample Cumulative ILCR:	0.00E+00	Sample HI: 2.22E-05

Notes:

HI = Hazard Index (sum of Hazard Quotients)

HQ = Hazard Quotient

ILCR = Incremental Lifetime Cancer Risk

NA = Not Available

RB-RSV<sub>u</sub> = Risk-Based Residential Soil Value based on cancer

RB-RSV<sub>c</sub> = Risk-Based Residential Soil Value based on noncancer endpoint

\*- CAS Number for 2,3,7,8-TCDD

\*\* - CAS Number is for Metallic Thallium

c. The 2,3,7,8-TCDD TEQ row should include the sum of the concentrations of all dioxins, furans, and dioxin-like PCBs reported as 2,3,7,8-TCDD toxic equivalents.

d. The BaP-TE row should include the sum of the concentrations for all carcinogenic PAHs (including benzo(a)pyrene) reported as Benzo(a)pyrene toxic equivalents. See direction 6 for designated urban background locations.

e. Benzo(a)pyrene row should include only the concentration of benzo(a)pyrene in order to address its noncancer hazards.

f. The Total PCBs row should include the sum of the concentrations for all PCBs except dioxin-like PCBs. Dioxin-like PCBs should be included in the 2,3,7,8-TCDD TE concentration entry.

\*\*\*Read the directions, in their entirety, on the 'Directions' Tab before use.\*\*\*

sample information

Site Number:	2019-4863
Site Name:	Pigeon Property
Sample Number:	SB-127
Sample Depth:	0-18"
Sample Date:	6/8/22

1. Select chemicals from dropdown list

2. Input reported concentrations in mg/kg

3. View autocalculated ILCR and HQ associated with each individual chemical

Analyte	CASRN	RB-RSV <sub>1</sub> (mg/kg)	RB-RSV <sub>2</sub> (mg/kg)	Sample Concentration (mg/kg)	Calculated Sample ILCR (unitless)	Calculated Sample HQ (unitless)
2,3,7,8-TCDD TEQ <sup>a</sup>	1746-01-6 <sup>b</sup>	2.25E-06	4.91E-05		Analyte conc. < RL	Analyte conc. < RL
BaP-TE <sup>c</sup>	—	7.28E-02	NA		Analyte conc. < RL	No noncancer RB-RSV
Benzo(a)pyrene <sup>d</sup>	50-32-8	NA	1.72E+01		Included in BaP-TE	Analyte conc. < RL
Total PCBs <sup>e</sup>	1336-36-3	1.14E-01	1.13E+00		Analyte conc. < RL	Analyte conc. < RL
Acetamin	34256-82-1	NA	1.22E+03		No cancer RB-RSV	Analyte conc. < RL
Acetone	67-64-1	NA	4.06E+04		No cancer RB-RSV	Analyte conc. < RL
Alachlor	15972-60-8	NA	6.08E+01		No cancer RB-RSV	Analyte conc. < RL
Aldrin	309-00-2	2.02E-02	2.10E+00		Analyte conc. < RL	Analyte conc. < RL
Aluminum	7429-90-5	NA	7.25E+04		No cancer RB-RSV	Analyte conc. < RL
Antimony	7440-36-0	NA	2.60E+01		No cancer RB-RSV	Analyte conc. < RL
Barium	7440-39-3	NA	1.12E+04		No cancer RB-RSV	Analyte conc. < RL
Benzoyl	17804-33-2	1.16E+02	7.90E+02		Analyte conc. < RL	Analyte conc. < RL
Benzene	71-43-2	6.98E-01	1.11E+02		Analyte conc. < RL	Analyte conc. < RL
Beryllium	7440-41-7	5.67E+02	3.45E+01		Analyte conc. < RL	Analyte conc. < RL
Bis(2-chloro-1-methyl ethyl) ether	108-60-1	NA	2.80E+03		No cancer RB-RSV	Analyte conc. < RL
Boron	7440-42-8	NA	1.47E+04		No cancer RB-RSV	Analyte conc. < RL
Bromate	15541-45-4	5.36E-01	2.93E+02		Analyte conc. < RL	Analyte conc. < RL
Bromochloromethane	74-97-5	NA	1.93E+02		No cancer RB-RSV	Analyte conc. < RL
Bromobenzyl	1689-84-5	2.69E+00	9.12E+02		Analyte conc. < RL	Analyte conc. < RL
Butylbenzene, n-	104-51-8	NA	3.50E+03		No cancer RB-RSV	Analyte conc. < RL
Butylbenzene, sec-	135-98-8	NA	7.01E+03		No cancer RB-RSV	Analyte conc. < RL
Butylbenzene, tert-	98-06-6	NA	7.01E+03		No cancer RB-RSV	Analyte conc. < RL
Cadmium (food)	7440-43-9	7.56E+02	6.86E+00		Analyte conc. < RL	Analyte conc. < RL
Carbaryl	63-25-2	3.17E+02	6.08E+03		Analyte conc. < RL	Analyte conc. < RL
Carbon Disulfide	75-15-0	NA	6.08E+02		No cancer RB-RSV	Analyte conc. < RL
Carbon tetrachloride	56-23-5	3.72E-01	1.30E+02		Analyte conc. < RL	Analyte conc. < RL
Chlorobenzene	108-90-7	NA	4.14E+02		No cancer RB-RSV	Analyte conc. < RL
Chromium (III) (insoluble salts)	16065-83-1	NA	4.02E+04		No cancer RB-RSV	Analyte conc. < RL
Chromium (VI)	18540-29-9	9.06E-02	1.16E+02		Analyte conc. < RL	Analyte conc. < RL
Cobalt	7440-48-4	1.51E+02	2.19E+01		Analyte conc. < RL	Analyte conc. < RL
Copper	7440-50-8	NA	1.04E+04		No cancer RB-RSV	Analyte conc. < RL
Di (2-ethylhexyl) phthalate	117-81-7	1.98E+01	1.22E+03		Analyte conc. < RL	Analyte conc. < RL
Dibromochloropropane	96-12-8	6.00E-03	6.63E+00		Analyte conc. < RL	Analyte conc. < RL
Dibromomethane, 1,2-	106-93-4	2.27E-02	1.15E+02		Analyte conc. < RL	Analyte conc. < RL
Dichloroethane, 1,1-	75-34-3	2.10E+00	1.40E+04		Analyte conc. < RL	Analyte conc. < RL
Dichloroethane, 1,2-	107-06-2	2.85E-01	4.95E+01		Analyte conc. < RL	Analyte conc. < RL
Dichloroethylene, cis 1,2-	156-59-2	NA	1.40E+02		No cancer RB-RSV	Analyte conc. < RL
Dichloroethylene, trans 1,2-	156-60-5	NA	1.40E+03		No cancer RB-RSV	Analyte conc. < RL
Dichloropropane, 1,2-	78-87-5	1.31E+00	2.63E+01		Analyte conc. < RL	Analyte conc. < RL
Dioxane, 1,4-	123-91-1	2.78E+00	1.05E+03		Analyte conc. < RL	Analyte conc. < RL
Ethylbenzene	100-41-4	3.68E+00	4.45E+02		Analyte conc. < RL	Analyte conc. < RL
Fluoranthene	206-44-0	NA	2.30E+03	1.40E-02	No cancer RB-RSV	6.08E-06
Fluorene	86-73-7	NA	2.30E+03		No cancer RB-RSV	Analyte conc. < RL
Hexachlorobenzene	118-74-1	1.31E-01	5.61E+01		Analyte conc. < RL	Analyte conc. < RL
Hexahydro-1,3,5-trinitro-1,3,5-triazine (RDX)	121-82-4	4.60E+00	2.90E+02		Analyte conc. < RL	Analyte conc. < RL
Hydrogen cyanide	74-90-9	NA	4.91E+01		No cancer RB-RSV	Analyte conc. < RL
Iron	7439-89-6	NA	5.13E+04		No cancer RB-RSV	Analyte conc. < RL
Isopropylbenzene (cumene)	98-82-8	NA	2.56E+02		No cancer RB-RSV	Analyte conc. < RL
Manganese (non-diet)	7439-96-5	NA	1.12E+03		No cancer RB-RSV	Analyte conc. < RL
Mercury (elemental)	7439-97-6	NA	3.13E+00		No cancer RB-RSV	Analyte conc. < RL
Methyl ethyl ketone	78-93-3	NA	1.70E+04		No cancer RB-RSV	Analyte conc. < RL
Methyl tert-butyl ether (MTBE)	1634-04-4	NA	6.49E+02		No cancer RB-RSV	Analyte conc. < RL
Molybdenum	7439-98-7	NA	3.66E+02		No cancer RB-RSV	Analyte conc. < RL
Naphthalene	91-20-3	2.72E+00	2.24E+02		Analyte conc. < RL	Analyte conc. < RL
Nickel	7440-02-0	5.23E+03	9.40E+02		Analyte conc. < RL	Analyte conc. < RL
(HMX)	2691-41-0	NA	3.70E+03		No cancer RB-RSV	Analyte conc. < RL
Pentachlorophenol	87-86-5	4.84E-01	2.37E+02		Analyte conc. < RL	Analyte conc. < RL
Pentaerythritol tetranitrate (PETN)	78-11-5	NA	1.22E+02		No cancer RB-RSV	Analyte conc. < RL
Perchlorate	14797-23-0	NA	5.13E+01		No cancer RB-RSV	Analyte conc. < RL
Perfluorheptanoic acid (PFHpA)	375-85-9	NA	1.22E+00		No cancer RB-RSV	Analyte conc. < RL
Perfluorohexane sulfonic acid (PFHxS)	355-46-4	NA	1.22E+00		No cancer RB-RSV	Analyte conc. < RL
Perfluorononanoic acid (PFNA)	375-95-1	NA	1.22E+00		No cancer RB-RSV	Analyte conc. < RL
Perfluorooctane sulfonic acid (PFOS)	1763-23-1	NA	1.22E+00		No cancer RB-RSV	Analyte conc. < RL
Perfluorooctanoic acid (PFOA)	335-67-1	3.96E+00	1.22E+00		Analyte conc. < RL	Analyte conc. < RL
Propoxur (Baygon)	114-26-1	7.88E+01	2.43E+02		Analyte conc. < RL	Analyte conc. < RL
Propyl benzene, n-	103-65-1	NA	2.53E+02		No cancer RB-RSV	Analyte conc. < RL
Selenium	7782-49-2	NA	3.66E+02		No cancer RB-RSV	Analyte conc. < RL
Silver	7440-22-4	NA	2.37E+02		No cancer RB-RSV	Analyte conc. < RL
Tetrachloroethane, 1,1,1,2-	630-20-6	1.32E+00	2.10E+03		Analyte conc. < RL	Analyte conc. < RL
Tetrachloroethylene	127-18-4	2.38E+00	1.13E+02		Analyte conc. < RL	Analyte conc. < RL
Thallium (soluble Thallium)	7440-28-0**	NA	7.33E-01		No cancer RB-RSV	Analyte conc. < RL
Toluene	108-88-3	NA	7.06E+02		No cancer RB-RSV	Analyte conc. < RL
Trichloroethylene	79-01-6	6.81E-01	6.21E+00		Analyte conc. < RL	Analyte conc. < RL
Trichloropropane, 1,2,3-	96-18-4	3.11E-03	8.67E+00		Analyte conc. < RL	Analyte conc. < RL
Trimethylbenzene, 1,2,3-	526-73-8	NA	2.06E+02		No cancer RB-RSV	Analyte conc. < RL
Trimethylbenzene, 1,2,4-	95-63-6	NA	1.66E+02		No cancer RB-RSV	Analyte conc. < RL
Trimethylbenzene, 1,3,5-	108-67-8	NA	1.44E+02		No cancer RB-RSV	Analyte conc. < RL
Trinitrotoluene, 2,4,6- (TNT)	118-96-7	1.15E+01	3.49E+01		Analyte conc. < RL	Analyte conc. < RL
Uranium (soluble salts)	NA	NA	4.40E+01		No cancer RB-RSV	Analyte conc. < RL
Vanadium	7440-62-2	NA	2.77E+00		No cancer RB-RSV	Analyte conc. < RL
Vinyl chloride	75-01-4	9.83E-02	8.51E+01		Analyte conc. < RL	Analyte conc. < RL
Xylenes	1330-20-7	NA	2.52E+02		No cancer RB-RSV	Analyte conc. < RL
Zinc	7440-66-6	NA	2.20E+04		No cancer RB-RSV	Analyte conc. < RL
				Sample Cumulative ILCR:	0.00E+00	Sample HI: 6.08E-06

Notes:  
HI = Hazard Index (sum of Hazard Quotients)  
HQ = Hazard Quotient  
ILCR = Incremental Lifetime Cancer Risk  
NA = Not Available  
RB-RSV<sub>1</sub> = Risk-Based Residential Soil Value based on cancer  
RB-RSV<sub>2</sub> = Risk-Based Residential Soil Value based on noncancer endpoint  
\* - CAS Number for 2,3,7,8-TCDD  
\*\* - CAS Number is for Metallic Thallium

c. The 2,3,7,8-TCDD TEQ row should include the sum of the concentrations of all dioxins, furans, and dioxin-like PCBs reported as 2,3,7,8-TCDD toxic equivalents.  
d. The BaP-TE row should include the sum of the concentrations for all carcinogenic PAHs (including benzo(a)pyrene) reported as Benzo(a)pyrene toxic equivalents. See direction 6 for designated urban background locations.  
e. Benzo(a)pyrene row should include only the concentration of benzo(a)pyrene in order to address its noncancer hazards.  
f. The Total PCBs row should include the sum of the concentrations for all PCBs except dioxin-like PCBs. Dioxin-like PCBs should be included in the 2,3,7,8-TCDD TE concentration entry.

\*\*\*Read the directions, in their entirety, on the 'Directions' Tab before use.\*\*\*

sample information	Site Number:	2019-4863
	Site Name:	Pigeon Property
	Sample Number:	SB-128
	Sample Depth:	0-18"
	Sample Date:	6/8/22

1. Select chemicals from dropdown list				2. Input reported concentrations in mg/kg	3. View autocalculated ILCR and HQ associated with each individual chemical	
Analyte	CASRN	RB-RSV <sub>u</sub> (mg/kg)	RB-RSV <sub>c</sub> (mg/kg)	Sample Concentration (mg/kg)	Calculated Sample ILCR (unitless)	Calculated Sample HQ (unitless)
2,3,7,8-TCDD TEQ <sup>a</sup>	1746-01-6 <sup>b</sup>	2.25E-06	4.91E-05		Analyte conc. < RL	Analyte conc. < RL
BaP-TE <sup>c</sup>	—	7.28E-02	NA		Analyte conc. < RL	No noncancer RB-RSV
Benzo(a)pyrene <sup>d</sup>	50-32-8	NA	1.72E+01		Included in BaP-TE	Analyte conc. < RL
Total PCBs <sup>e</sup>	1336-36-3	1.14E-01	1.13E+00		Analyte conc. < RL	Analyte conc. < RL
Acetaminoh	34256-82-1	NA	1.22E+03		No cancer RB-RSV	Analyte conc. < RL
Acetone	67-64-1	NA	4.06E+04		No cancer RB-RSV	Analyte conc. < RL
Alachlor	15972-60-8	NA	6.08E+01		No cancer RB-RSV	Analyte conc. < RL
Aldrin	309-00-2	2.02E-02	2.10E+00		Analyte conc. < RL	Analyte conc. < RL
Aluminum	7429-90-5	NA	7.25E+04		No cancer RB-RSV	Analyte conc. < RL
Antimony	7440-36-0	NA	2.60E+01		No cancer RB-RSV	Analyte conc. < RL
Barium	7440-39-3	NA	1.12E+04		No cancer RB-RSV	Analyte conc. < RL
Benzoyl	17804-33-2	1.16E+02	7.90E+02		Analyte conc. < RL	Analyte conc. < RL
Benzene	71-43-2	6.98E-01	1.11E+02		Analyte conc. < RL	Analyte conc. < RL
Beryllium	7440-41-7	5.67E+02	3.45E+01		Analyte conc. < RL	Analyte conc. < RL
Bis(2-chloro-1-methyl ethyl)ether	108-60-1	NA	2.80E+03		No cancer RB-RSV	Analyte conc. < RL
Boron	7440-42-8	NA	1.47E+04		No cancer RB-RSV	Analyte conc. < RL
Bromate	15541-45-4	5.36E-01	2.93E+02		Analyte conc. < RL	Analyte conc. < RL
Bromochloromethane	74-97-5	NA	1.93E+02		No cancer RB-RSV	Analyte conc. < RL
Bromoxynil	1689-84-5	2.69E+00	9.12E+02		Analyte conc. < RL	Analyte conc. < RL
Butylbenzene, n-	104-51-8	NA	3.50E+03		No cancer RB-RSV	Analyte conc. < RL
Butylbenzene, sec-	135-98-8	NA	7.01E+03		No cancer RB-RSV	Analyte conc. < RL
Butylbenzene, tert-	98-06-6	NA	7.01E+03		No cancer RB-RSV	Analyte conc. < RL
Cadmium (food)	7440-43-9	7.56E+02	6.86E+00		Analyte conc. < RL	Analyte conc. < RL
Carbaryl	63-25-2	3.17E+02	6.08E+03		Analyte conc. < RL	Analyte conc. < RL
Carbon Disulfide	75-15-0	NA	6.08E+02		No cancer RB-RSV	Analyte conc. < RL
Carbon tetrachloride	56-23-5	3.72E-01	1.30E+02		Analyte conc. < RL	Analyte conc. < RL
Chlorobenzene	108-90-7	NA	4.14E+02		No cancer RB-RSV	Analyte conc. < RL
Chromium (III) (insoluble salts)	16065-83-1	NA	4.02E+04		No cancer RB-RSV	Analyte conc. < RL
Chromium (VI)	18540-29-9	9.06E-02	1.16E+02		Analyte conc. < RL	Analyte conc. < RL
Cobalt	7440-48-4	1.51E+02	2.19E+01		Analyte conc. < RL	Analyte conc. < RL
Copper	7440-50-8	NA	1.04E+04		No cancer RB-RSV	Analyte conc. < RL
Di (2-ethylhexyl) phthalate	117-81-7	1.98E+01	1.22E+03		Analyte conc. < RL	Analyte conc. < RL
Dibromochloropropane	96-12-8	6.00E-03	6.63E+00		Analyte conc. < RL	Analyte conc. < RL
Dibromoethane, 1,2-	106-93-4	2.27E-02	1.15E+02		Analyte conc. < RL	Analyte conc. < RL
Dichloroethane, 1,1-	75-34-3	2.10E+00	1.40E+04		Analyte conc. < RL	Analyte conc. < RL
Dichloroethane, 1,2-	107-06-2	2.85E-01	4.95E+01		Analyte conc. < RL	Analyte conc. < RL
Dichloroethylene, cis 1,2-	156-59-2	NA	1.40E+02		No cancer RB-RSV	Analyte conc. < RL
Dichloroethylene, trans 1,2-	156-60-5	NA	1.40E+03		No cancer RB-RSV	Analyte conc. < RL
Dichloropropane, 1,2-	78-87-5	1.31E+00	2.63E+01		Analyte conc. < RL	Analyte conc. < RL
Dioxane, 1,4-	123-91-1	2.78E+00	1.05E+03		Analyte conc. < RL	Analyte conc. < RL
Ethylbenzene	100-41-4	3.68E+00	4.45E+02		Analyte conc. < RL	Analyte conc. < RL
Fluoranthene	206-44-0	NA	2.30E+03	2.00E-02	No cancer RB-RSV	8.69E-06
Fluorene	86-73-7	NA	2.30E+03		No cancer RB-RSV	Analyte conc. < RL
Hexachlorobenzene	118-74-1	1.31E-01	5.61E+01		Analyte conc. < RL	Analyte conc. < RL
Hexahydro-1,3,5-trinitro-1,3,5-triazine (RDX)	121-82-4	4.60E+00	2.90E+02		Analyte conc. < RL	Analyte conc. < RL
Hydrogen cyanide	74-90-9	NA	4.91E+01		No cancer RB-RSV	Analyte conc. < RL
Iron	7439-89-6	NA	5.13E+04		No cancer RB-RSV	Analyte conc. < RL
Isopropylbenzene (cumene)	98-82-8	NA	2.56E+02		No cancer RB-RSV	Analyte conc. < RL
Manganese (non-diet)	7439-96-5	NA	1.12E+03		No cancer RB-RSV	Analyte conc. < RL
Mercury (elemental)	7439-97-6	NA	3.13E+00		No cancer RB-RSV	Analyte conc. < RL
Methyl ethyl ketone	78-93-3	NA	1.70E+04		No cancer RB-RSV	Analyte conc. < RL
Methyl tert-butyl ether (MTBE)	1634-04-4	NA	6.49E+02		No cancer RB-RSV	Analyte conc. < RL
Molybdenum	7439-98-7	NA	3.66E+02		No cancer RB-RSV	Analyte conc. < RL
Naphthalene	91-20-3	2.72E+00	2.24E+02		Analyte conc. < RL	Analyte conc. < RL
Nickel	7440-02-0	5.23E+03	9.40E+02		Analyte conc. < RL	Analyte conc. < RL
(HNX)	2691-41-0	NA	3.70E+03		No cancer RB-RSV	Analyte conc. < RL
Pentachlorophenol	87-86-5	4.84E-01	2.37E+02		Analyte conc. < RL	Analyte conc. < RL
Pentaerythritol tetranitrate (PETN)	78-11-5	NA	1.22E+02		No cancer RB-RSV	Analyte conc. < RL
Perchlorate	14797-23-0	NA	5.13E+01		No cancer RB-RSV	Analyte conc. < RL
Perfluorheptanoic acid (PFHpA)	375-85-9	NA	1.22E+00		No cancer RB-RSV	Analyte conc. < RL
Perfluorohexane sulfonic acid (PFHxS)	355-46-4	NA	1.22E+00		No cancer RB-RSV	Analyte conc. < RL
Perfluorononanoic acid (PFNA)	375-95-1	NA	1.22E+00		No cancer RB-RSV	Analyte conc. < RL
Perfluorooctane sulfonic acid (PFOS)	1763-23-1	NA	1.22E+00		No cancer RB-RSV	Analyte conc. < RL
Perfluorooctanoic acid (PFOA)	335-67-1	3.96E+00	1.22E+00		Analyte conc. < RL	Analyte conc. < RL
Propoxur (Baygon)	114-26-1	7.88E+01	2.43E+02		Analyte conc. < RL	Analyte conc. < RL
Propyl benzene, n-	103-65-1	NA	2.53E+02		No cancer RB-RSV	Analyte conc. < RL
Selenium	7782-49-2	NA	3.66E+02		No cancer RB-RSV	Analyte conc. < RL
Silver	7440-22-4	NA	2.37E+02		No cancer RB-RSV	Analyte conc. < RL
Tetrachloroethane, 1,1,1,2-	630-20-6	1.32E+00	2.10E+03		Analyte conc. < RL	Analyte conc. < RL
Tetrachloroethylene	127-18-4	2.38E+00	1.13E+02		Analyte conc. < RL	Analyte conc. < RL
Thallium (soluble Thallium)	7440-28-0 <sup>**</sup>	NA	7.33E-01		No cancer RB-RSV	Analyte conc. < RL
Toluene	108-88-3	NA	7.06E+02		No cancer RB-RSV	Analyte conc. < RL
Trichloroethylene	79-01-6	6.81E-01	6.21E+00		Analyte conc. < RL	Analyte conc. < RL
Trichloropropane, 1,2,3-	96-18-4	3.11E-03	8.67E+00		Analyte conc. < RL	Analyte conc. < RL
Trimethylbenzene, 1,2,3-	526-73-8	NA	2.06E+02		No cancer RB-RSV	Analyte conc. < RL
Trimethylbenzene, 1,2,4-	95-63-6	NA	1.66E+02		No cancer RB-RSV	Analyte conc. < RL
Trimethylbenzene, 1,3,5-	108-67-8	NA	1.44E+02		No cancer RB-RSV	Analyte conc. < RL
Trinitrotoluene, 2,4,6- (TNT)	118-96-7	1.15E+01	3.49E+01		Analyte conc. < RL	Analyte conc. < RL
Uranium (soluble salts)	NA	NA	4.40E+01		No cancer RB-RSV	Analyte conc. < RL
Vanadium	7440-62-2	NA	2.77E+00		No cancer RB-RSV	Analyte conc. < RL
Vinyl chloride	75-01-4	9.83E-02	8.51E+01		Analyte conc. < RL	Analyte conc. < RL
Xylenes	1330-20-7	NA	2.52E+02		No cancer RB-RSV	Analyte conc. < RL
Zinc	7440-66-6	NA	2.20E+04		No cancer RB-RSV	Analyte conc. < RL
<sup>a</sup> RB-RSV <sub>u</sub> , corresponds to a one-in-one-million ILCR. See RUEL Appendix E, Table 1.					Sample Cumulative ILCR:	Sample HI:
<sup>b</sup> RB-RSV <sub>c</sub> , corresponds to a HQ of 1 based on Hypothetical Young Child Resident scenario. See RUEL Appendix E, Table 1.					0.00E+00	8.69E-06

Notes:

HI = Hazard Index (sum of Hazard Quotients)

HQ = Hazard Quotient

ILCR = Incremental Lifetime Cancer Risk

NA = Not Available

RB-RSV<sub>u</sub> = Risk-Based Residential Soil Value based on cancer

RB-RSV<sub>c</sub> = Risk-Based Residential Soil Value based on noncancer endpoint

\*- CAS Number for 2,3,7,8-TCDD

\*\* - CAS Number is for Metallic Thallium

c. The 2,3,7,8-TCDD TEQ row should include the sum of the concentrations of all dioxins, furans, and dioxin-like PCBs reported as 2,3,7,8-TCDD toxic equivalents.

d. The BaP-TE row should include the sum of the concentrations for all carcinogenic PAHs (including benzo(a)pyrene) reported as Benzo(a)pyrene toxic equivalents. See direction 6 for designated urban background locations.

e. Benzo(a)pyrene row should include only the concentration of benzo(a)pyrene in order to address its noncancer hazards.

f. The Total PCBs row should include the sum of the concentrations for all PCBs except dioxin-like PCBs. Dioxin-like PCBs should be included in the 2,3,7,8-TCDD TE concentration entry.

\*\*\*Read the directions, in their entirety, on the 'Directions' Tab before use.\*\*\*

sample information

Site Number:	2019-4863
Site Name:	Pigeon Property
Sample Number:	SB-129
Sample Depth:	0-18"
Sample Date:	6/8/22

1. Select chemicals from dropdown list

2. Input reported concentrations in mg/kg

3. View autocalculated ILCR and HQ associated with each individual chemical

Analyte	CASRN	RB-RSV <sub>1</sub> (mg/kg)	RB-RSV <sub>2</sub> (mg/kg)	Sample Concentration (mg/kg)	Calculated Sample ILCR (unitless)	Calculated Sample HQ (unitless)
2,3,7,8-TCDD TEQ <sup>a</sup>	1746-01-6 <sup>b</sup>	2.25E-06	4.91E-05		Analyte conc. < RL	Analyte conc. < RL
BaP-TE <sup>c</sup>	—	7.28E-02	NA		Analyte conc. < RL	No noncancer RB-RSV
Benzo(a)pyrene <sup>d</sup>	50-32-8	NA	1.72E+01		Included in BaP-TE	Analyte conc. < RL
Total PCBs <sup>e</sup>	1336-36-3	1.14E-01	1.13E+00		Analyte conc. < RL	Analyte conc. < RL
Acetamin	34256-82-1	NA	1.22E+03		No cancer RB-RSV	Analyte conc. < RL
Acetone	67-64-1	NA	4.06E+04		No cancer RB-RSV	Analyte conc. < RL
Alachlor	15972-60-8	NA	6.08E+01		No cancer RB-RSV	Analyte conc. < RL
Aldrin	309-00-2	2.02E-02	2.10E+00		Analyte conc. < RL	Analyte conc. < RL
Aluminum	7429-90-5	NA	7.75E+04		No cancer RB-RSV	Analyte conc. < RL
Antimony	7440-36-0	NA	2.60E+01		No cancer RB-RSV	Analyte conc. < RL
Barium	7440-39-3	NA	1.12E+04		No cancer RB-RSV	Analyte conc. < RL
Benzoyl	17804-33-2	1.16E+02	7.90E+02		Analyte conc. < RL	Analyte conc. < RL
Benzene	71-43-2	6.98E-01	1.11E+02		Analyte conc. < RL	Analyte conc. < RL
Beryllium	7440-41-7	5.67E+02	3.45E+01		Analyte conc. < RL	Analyte conc. < RL
Bis(2-chloro-1-methyl ethyl) ether	108-60-1	NA	2.80E+03		No cancer RB-RSV	Analyte conc. < RL
Boron	7440-42-8	NA	1.47E+04		No cancer RB-RSV	Analyte conc. < RL
Bromate	15541-45-4	5.36E-01	2.93E+02		Analyte conc. < RL	Analyte conc. < RL
Bromochloromethane	74-97-5	NA	1.93E+02		No cancer RB-RSV	Analyte conc. < RL
Bromobenzyl	1689-84-5	2.69E+00	9.12E+02		Analyte conc. < RL	Analyte conc. < RL
Butylbenzene, n-	104-51-8	NA	3.50E+03		No cancer RB-RSV	Analyte conc. < RL
Butylbenzene, sec-	135-98-8	NA	7.01E+03		No cancer RB-RSV	Analyte conc. < RL
Butylbenzene, tert-	98-06-6	NA	7.01E+03		No cancer RB-RSV	Analyte conc. < RL
Cadmium (food)	7440-43-9	7.56E+02	6.86E+00		Analyte conc. < RL	Analyte conc. < RL
Carbaryl	63-25-2	3.17E+02	6.08E+03		Analyte conc. < RL	Analyte conc. < RL
Carbon Disulfide	75-15-0	NA	6.08E+02		No cancer RB-RSV	Analyte conc. < RL
Carbon tetrachloride	56-23-5	3.72E-01	1.30E+02		Analyte conc. < RL	Analyte conc. < RL
Chlorobenzene	108-90-7	NA	4.14E+02		No cancer RB-RSV	Analyte conc. < RL
Chromium (III) (insoluble salts)	16065-83-1	NA	4.02E+04		No cancer RB-RSV	Analyte conc. < RL
Chromium (VI)	18540-29-9	9.06E-02	1.16E+02		Analyte conc. < RL	Analyte conc. < RL
Cobalt	7440-48-4	1.51E+02	2.19E+01		Analyte conc. < RL	Analyte conc. < RL
Copper	7440-50-8	NA	1.04E+04		No cancer RB-RSV	Analyte conc. < RL
Di (2-ethylhexyl) phthalate	117-81-7	1.98E+01	1.22E+03		Analyte conc. < RL	Analyte conc. < RL
Dibromochloropropane	96-12-8	6.00E-03	6.63E+00		Analyte conc. < RL	Analyte conc. < RL
Dibromoethane, 1,2-	106-93-4	2.27E-02	1.15E+02		Analyte conc. < RL	Analyte conc. < RL
Dichloroethane, 1,1-	75-34-3	2.10E+00	1.40E+04		Analyte conc. < RL	Analyte conc. < RL
Dichloroethane, 1,2-	107-06-2	2.85E-01	4.95E+01		Analyte conc. < RL	Analyte conc. < RL
Dichloroethylene, cis 1,2-	156-59-2	NA	1.40E+02		No cancer RB-RSV	Analyte conc. < RL
Dichloroethylene, trans 1,2-	156-60-5	NA	1.40E+03		No cancer RB-RSV	Analyte conc. < RL
Dichloropropane, 1,2-	78-87-5	1.31E+00	2.63E+01		Analyte conc. < RL	Analyte conc. < RL
Dioxane, 1,4-	123-91-1	2.78E+00	1.05E+03		Analyte conc. < RL	Analyte conc. < RL
Ethylbenzene	100-41-4	3.68E+00	4.45E+02		Analyte conc. < RL	Analyte conc. < RL
Fluoranthene	206-44-0	NA	2.30E+03	7.40E-02	No cancer RB-RSV	3.22E-05
Fluorene	86-73-7	NA	2.30E+03		No cancer RB-RSV	Analyte conc. < RL
Hexachlorobenzene	118-74-1	1.31E-01	5.61E+01		Analyte conc. < RL	Analyte conc. < RL
Hexahydro-1,3,5-trinitro-1,3,5-triazine (RDX)	121-82-4	4.60E+00	2.90E+02		Analyte conc. < RL	Analyte conc. < RL
Hydrogen cyanide	74-90-9	NA	4.91E+01		No cancer RB-RSV	Analyte conc. < RL
Iron	7439-89-6	NA	5.13E+04		No cancer RB-RSV	Analyte conc. < RL
Isopropylbenzene (cumene)	98-82-8	NA	2.56E+02		No cancer RB-RSV	Analyte conc. < RL
Manganese (non-diet)	7439-96-5	NA	1.12E+03		No cancer RB-RSV	Analyte conc. < RL
Mercury (elemental)	7439-97-6	NA	3.13E+00		No cancer RB-RSV	Analyte conc. < RL
Methyl ethyl ketone	78-93-3	NA	1.70E+04		No cancer RB-RSV	Analyte conc. < RL
Methyl tert-butyl ether (MTBE)	1634-04-4	NA	6.49E+02		No cancer RB-RSV	Analyte conc. < RL
Molybdenum	7439-98-7	NA	3.66E+02		No cancer RB-RSV	Analyte conc. < RL
Naphthalene	91-20-3	2.72E+00	2.24E+02		Analyte conc. < RL	Analyte conc. < RL
Nickel	7440-02-0	5.23E+03	9.40E+02		Analyte conc. < RL	Analyte conc. < RL
(HMX)	2691-41-0	NA	3.70E+03		No cancer RB-RSV	Analyte conc. < RL
Pentachlorophenol	87-86-5	4.84E-01	2.37E+02		Analyte conc. < RL	Analyte conc. < RL
Pentaerythritol tetranitrate (PETN)	78-11-5	NA	1.22E+02		No cancer RB-RSV	Analyte conc. < RL
Perchlorate	14797-23-0	NA	5.13E+01		No cancer RB-RSV	Analyte conc. < RL
Perfluorheptanoic acid (PFHpA)	375-85-9	NA	1.22E+00		No cancer RB-RSV	Analyte conc. < RL
Perfluorohexane sulfonic acid (PFHxS)	355-46-4	NA	1.22E+00		No cancer RB-RSV	Analyte conc. < RL
Perfluorononanoic acid (PFNA)	375-95-1	NA	1.22E+00		No cancer RB-RSV	Analyte conc. < RL
Perfluorooctane sulfonic acid (PFOS)	1763-23-1	NA	1.22E+00		No cancer RB-RSV	Analyte conc. < RL
Perfluorooctanoic acid (PFOA)	335-67-1	3.96E+00	1.22E+00		Analyte conc. < RL	Analyte conc. < RL
Propoxur (Baygon)	114-26-1	7.88E+01	2.43E+02		Analyte conc. < RL	Analyte conc. < RL
Propyl benzene, n-	103-65-1	NA	2.53E+02		No cancer RB-RSV	Analyte conc. < RL
Selenium	7782-49-2	NA	3.66E+02		No cancer RB-RSV	Analyte conc. < RL
Silver	7440-22-4	NA	2.37E+02		No cancer RB-RSV	Analyte conc. < RL
Tetrachloroethane, 1,1,1,2-	630-20-6	1.32E+00	2.10E+03		Analyte conc. < RL	Analyte conc. < RL
Tetrachloroethylene	127-18-4	2.38E+00	1.13E+02		Analyte conc. < RL	Analyte conc. < RL
Thallium (soluble Thallium)	7440-28-0**	NA	7.33E-01		No cancer RB-RSV	Analyte conc. < RL
Toluene	108-88-3	NA	7.06E+02		No cancer RB-RSV	Analyte conc. < RL
Trichloroethylene	79-01-6	6.81E-01	6.21E+00		Analyte conc. < RL	Analyte conc. < RL
Trichloropropane, 1,2,3-	96-18-4	3.11E-03	8.67E+00		Analyte conc. < RL	Analyte conc. < RL
Trimethylbenzene, 1,2,3-	526-73-8	NA	2.06E+02		No cancer RB-RSV	Analyte conc. < RL
Trimethylbenzene, 1,2,4-	95-63-6	NA	1.66E+02		No cancer RB-RSV	Analyte conc. < RL
Trimethylbenzene, 1,3,5-	108-67-8	NA	1.44E+02		No cancer RB-RSV	Analyte conc. < RL
Trinitrotoluene, 2,4,6- (TNT)	118-96-7	1.15E+01	3.49E+01		Analyte conc. < RL	Analyte conc. < RL
Uranium (soluble salts)	NA	NA	4.40E+01		No cancer RB-RSV	Analyte conc. < RL
Vanadium	7440-62-2	NA	2.77E+00		No cancer RB-RSV	Analyte conc. < RL
Vinyl chloride	75-01-4	9.83E-02	8.51E+01		Analyte conc. < RL	Analyte conc. < RL
Xylenes	1330-20-7	NA	2.52E+02		No cancer RB-RSV	Analyte conc. < RL
Zinc	7440-66-6	NA	2.20E+04		No cancer RB-RSV	Analyte conc. < RL
				Sample Cumulative ILCR:	0.00E+00	Sample HI: 3.22E-05

Notes:

HI = Hazard Index (sum of Hazard Quotients)

HQ = Hazard Quotient

ILCR = Incremental Lifetime Cancer Risk

NA = Not Available

RB-RSV<sub>1</sub> = Risk-Based Residential Soil Value based on cancer

RB-RSV<sub>2</sub> = Risk-Based Residential Soil Value based on noncancer endpoint

\*- CAS Number for 2,3,7,8-TCDD

\*\* - CAS Number is for Metallic Thallium

c. The 2,3,7,8-TCDD TEQ row should include the sum of the concentrations of all dioxins, furans, and dioxin-like PCBs reported as 2,3,7,8-TCDD toxic equivalents.

d. The BaP-TE row should include the sum of the concentrations for all carcinogenic PAHs (including benzo(a)pyrene) reported as Benzo(a)pyrene toxic equivalents. See direction 6 for designated urban background locations.

e. Benzo(a)pyrene row should include only the concentration of benzo(a)pyrene in order to address its noncancer hazards.

f. The Total PCBs row should include the sum of the concentrations for all PCBs except dioxin-like PCBs. Dioxin-like PCBs should be included in the 2,3,7,8-TCDD TE concentration entry.

\*\*\*Read the directions, in their entirety, on the 'Directions' Tab before use.\*\*\*

sample information

Site Number:	2019-4863
Site Name:	Pigeon Property
Sample Number:	SB-130
Sample Depth:	0-18"
Sample Date:	6/8/22

1. Select chemicals from dropdown list

2. Input reported concentrations in mg/kg

3. View autocalculated ILCR and HQ associated with each individual chemical

Analyte	CASRN	RB-RSV <sub>u</sub> (mg/kg)	RB-RSV <sub>c</sub> (mg/kg)	Sample Concentration (mg/kg)	Calculated Sample ILCR (unitless)	Calculated Sample HQ (unitless)
2,3,7,8-TCDD TEQ <sup>a</sup>	1746-01-6 <sup>b</sup>	2.25E-06	4.91E-05		Analyte conc. < RL	Analyte conc. < RL
BaP-TE <sup>c</sup>	—	7.28E-02	NA		Analyte conc. < RL	No noncancer RB-RSV
Benzo(a)pyrene <sup>d</sup>	50-32-8	NA	1.72E+01		Included in BaP-TE	Analyte conc. < RL
Total PCBs <sup>e</sup>	1336-36-3	1.14E-01	1.13E+00		Analyte conc. < RL	Analyte conc. < RL
Acetamin	34256-82-1	NA	1.22E+03		No cancer RB-RSV	Analyte conc. < RL
Acetone	67-64-1	NA	4.06E+04		No cancer RB-RSV	Analyte conc. < RL
Alachlor	15972-60-8	NA	6.08E+01		No cancer RB-RSV	Analyte conc. < RL
Aldrin	309-00-2	2.02E-02	2.10E+00		Analyte conc. < RL	Analyte conc. < RL
Aluminum	7429-90-5	NA	7.75E+04		No cancer RB-RSV	Analyte conc. < RL
Antimony	7440-36-0	NA	2.60E+01		No cancer RB-RSV	Analyte conc. < RL
Barium	7440-39-3	NA	1.12E+04		No cancer RB-RSV	Analyte conc. < RL
Benzoyl	17804-33-2	1.16E+02	7.90E+02		Analyte conc. < RL	Analyte conc. < RL
Benzene	71-43-2	6.98E-01	1.11E+02		Analyte conc. < RL	Analyte conc. < RL
Beryllium	7440-41-7	5.67E+02	3.45E+01		Analyte conc. < RL	Analyte conc. < RL
Bis(2-chloro-1-methyl ethyl) ether	108-60-1	NA	2.80E+03		No cancer RB-RSV	Analyte conc. < RL
Boron	7440-42-8	NA	1.47E+04		No cancer RB-RSV	Analyte conc. < RL
Bromate	15541-45-4	5.36E-01	2.93E+02		Analyte conc. < RL	Analyte conc. < RL
Bromochloromethane	74-97-5	NA	1.93E+02		No cancer RB-RSV	Analyte conc. < RL
Bromobenzyl	1689-84-5	2.69E+00	9.12E+02		Analyte conc. < RL	Analyte conc. < RL
Butylbenzene, n-	104-51-8	NA	3.50E+03		No cancer RB-RSV	Analyte conc. < RL
Butylbenzene, sec-	135-98-8	NA	7.01E+03		No cancer RB-RSV	Analyte conc. < RL
Butylbenzene, tert-	98-06-6	NA	7.01E+03		No cancer RB-RSV	Analyte conc. < RL
Cadmium (food)	7440-43-9	7.56E+02	6.86E+00		Analyte conc. < RL	Analyte conc. < RL
Carbaryl	63-25-2	3.17E+02	6.08E+03		Analyte conc. < RL	Analyte conc. < RL
Carbon Disulfide	75-15-0	NA	6.08E+02		No cancer RB-RSV	Analyte conc. < RL
Carbon tetrachloride	56-23-5	3.72E-01	1.30E+02		Analyte conc. < RL	Analyte conc. < RL
Chlorobenzene	108-90-7	NA	4.14E+02		No cancer RB-RSV	Analyte conc. < RL
Chromium (III) (insoluble salts)	16065-83-1	NA	4.02E+04		No cancer RB-RSV	Analyte conc. < RL
Chromium (VI)	18540-29-9	9.06E-02	1.16E+02		Analyte conc. < RL	Analyte conc. < RL
Cobalt	7440-48-4	1.51E+02	2.19E+01		Analyte conc. < RL	Analyte conc. < RL
Copper	7440-50-8	NA	1.04E+04		No cancer RB-RSV	Analyte conc. < RL
Di (2-ethylhexyl) phthalate	117-81-7	1.98E+01	1.22E+03		Analyte conc. < RL	Analyte conc. < RL
Dibromochloropropane	96-12-8	6.00E-03	6.63E+00		Analyte conc. < RL	Analyte conc. < RL
Dibromoethane, 1,2-	106-93-4	2.27E-02	1.15E+02		Analyte conc. < RL	Analyte conc. < RL
Dichloroethane, 1,1-	75-34-3	2.10E+00	1.40E+04		Analyte conc. < RL	Analyte conc. < RL
Dichloroethane, 1,2-	107-06-2	2.85E-01	4.95E+01		Analyte conc. < RL	Analyte conc. < RL
Dichloroethylene, cis 1,2-	156-59-2	NA	1.40E+02		No cancer RB-RSV	Analyte conc. < RL
Dichloroethylene, trans 1,2-	156-60-5	NA	1.40E+03		No cancer RB-RSV	Analyte conc. < RL
Dichloropropane, 1,2-	78-87-5	1.31E+00	2.63E+01		Analyte conc. < RL	Analyte conc. < RL
Dioxane, 1,4-	123-91-1	2.78E+00	1.05E+03		Analyte conc. < RL	Analyte conc. < RL
Ethylbenzene	100-41-4	3.68E+00	4.45E+02		Analyte conc. < RL	Analyte conc. < RL
Fluoranthene	206-44-0	NA	2.30E+03	1.30E-02	No cancer RB-RSV	5.65E-06
Fluorene	86-73-7	NA	2.30E+03		No cancer RB-RSV	Analyte conc. < RL
Hexachlorobenzene	118-74-1	1.31E-01	5.61E+01		Analyte conc. < RL	Analyte conc. < RL
Hexahydro-1,3,5-trinitro-1,3,5-triazine (RDX)	121-82-4	4.60E+00	2.90E+02		Analyte conc. < RL	Analyte conc. < RL
Hydrogen cyanide	74-90-9	NA	4.91E+01		No cancer RB-RSV	Analyte conc. < RL
Iron	7439-89-6	NA	5.13E+04		No cancer RB-RSV	Analyte conc. < RL
Isopropylbenzene (cumene)	98-82-8	NA	2.56E+02		No cancer RB-RSV	Analyte conc. < RL
Manganese (non-diet)	7439-96-5	NA	1.12E+03		No cancer RB-RSV	Analyte conc. < RL
Mercury (elemental)	7439-97-6	NA	3.13E+00		No cancer RB-RSV	Analyte conc. < RL
Methyl ethyl ketone	78-93-3	NA	1.70E+04		No cancer RB-RSV	Analyte conc. < RL
Methyl tert-butyl ether (MTBE)	1634-04-4	NA	6.49E+02		No cancer RB-RSV	Analyte conc. < RL
Molybdenum	7439-98-7	NA	3.66E+02		No cancer RB-RSV	Analyte conc. < RL
Naphthalene	91-20-3	2.72E+00	2.24E+02		Analyte conc. < RL	Analyte conc. < RL
Nickel	7440-02-0	5.23E+03	9.40E+02		Analyte conc. < RL	Analyte conc. < RL
(HMX)	2691-41-0	NA	3.70E+03		No cancer RB-RSV	Analyte conc. < RL
Pentachlorophenol	87-86-5	4.84E-01	2.37E+02		Analyte conc. < RL	Analyte conc. < RL
Pentaerythritol tetranitrate (PETN)	78-11-5	NA	1.22E+02		No cancer RB-RSV	Analyte conc. < RL
Perchlorate	14797-23-0	NA	5.13E+01		No cancer RB-RSV	Analyte conc. < RL
Perfluorheptanoic acid (PFHpA)	375-85-9	NA	1.22E+00		No cancer RB-RSV	Analyte conc. < RL
Perfluorohexane sulfonic acid (PFHxS)	355-46-4	NA	1.22E+00		No cancer RB-RSV	Analyte conc. < RL
Perfluorononanoic acid (PFNA)	375-95-1	NA	1.22E+00		No cancer RB-RSV	Analyte conc. < RL
Perfluorooctane sulfonic acid (PFOS)	1763-23-1	NA	1.22E+00		No cancer RB-RSV	Analyte conc. < RL
Perfluorooctanoic acid (PFOA)	335-67-1	3.96E+00	1.22E+00		Analyte conc. < RL	Analyte conc. < RL
Propoxur (Baygon)	114-26-1	7.88E+01	2.43E+02		Analyte conc. < RL	Analyte conc. < RL
Propyl benzene, n-	103-65-1	NA	2.53E+02		No cancer RB-RSV	Analyte conc. < RL
Selenium	7782-49-2	NA	3.66E+02		No cancer RB-RSV	Analyte conc. < RL
Silver	7440-22-4	NA	2.37E+02		No cancer RB-RSV	Analyte conc. < RL
Tetrachloroethane, 1,1,1,2-	630-20-6	1.32E+00	2.10E+03		Analyte conc. < RL	Analyte conc. < RL
Tetrachloroethylene	127-18-4	2.38E+00	1.13E+02		Analyte conc. < RL	Analyte conc. < RL
Thallium (soluble Thallium)	7440-28-0**	NA	7.33E-01		No cancer RB-RSV	Analyte conc. < RL
Toluene	108-88-3	NA	7.06E+02		No cancer RB-RSV	Analyte conc. < RL
Trichloroethylene	79-01-6	6.81E-01	6.21E+00		Analyte conc. < RL	Analyte conc. < RL
Trichloropropane, 1,2,3-	96-18-4	3.11E-03	8.67E+00		Analyte conc. < RL	Analyte conc. < RL
Trimethylbenzene, 1,2,3-	526-73-8	NA	2.06E+02		No cancer RB-RSV	Analyte conc. < RL
Trimethylbenzene, 1,2,4-	95-63-6	NA	1.66E+02		No cancer RB-RSV	Analyte conc. < RL
Trimethylbenzene, 1,3,5-	108-67-8	NA	1.44E+02		No cancer RB-RSV	Analyte conc. < RL
Trinitrotoluene, 2,4,6- (TNT)	118-96-7	1.15E+01	3.49E+01		Analyte conc. < RL	Analyte conc. < RL
Uranium (soluble salts)	NA	NA	4.40E+01		No cancer RB-RSV	Analyte conc. < RL
Vanadium	7440-62-2	NA	2.77E+00		No cancer RB-RSV	Analyte conc. < RL
Vinyl chloride	75-01-4	9.83E-02	8.51E+01		Analyte conc. < RL	Analyte conc. < RL
Xylenes	1330-20-7	NA	2.52E+02		No cancer RB-RSV	Analyte conc. < RL
Zinc	7440-66-6	NA	2.20E+04		No cancer RB-RSV	Analyte conc. < RL
				Sample Cumulative ILCR:	0.00E+00	Sample HI: 5.65E-06

Notes:  
HI = Hazard Index (sum of Hazard Quotients)  
HQ = Hazard Quotient  
ILCR = Incremental Lifetime Cancer Risk  
NA = Not Available  
RB-RSV<sub>u</sub> = Risk-Based Residential Soil Value based on cancer  
RB-RSV<sub>c</sub> = Risk-Based Residential Soil Value based on noncancer endpoint  
\* - CAS Number for 2,3,7,8-TCDD  
\*\* - CAS Number is for Metallic Thallium

c. The 2,3,7,8-TCDD TEQ row should include the sum of the concentrations of all dioxins, furans, and dioxin-like PCBs reported as 2,3,7,8-TCDD toxic equivalents.  
d. The BaP-TE row should include the sum of the concentrations for all carcinogenic PAHs (including benzo(a)pyrene) reported as Benzo(a)pyrene toxic equivalents. See direction 6 for designated urban background locations.  
e. Benzo(a)pyrene row should include only the concentration of benzo(a)pyrene in order to address its noncancer hazards.  
f. The Total PCBs row should include the sum of the concentrations for all PCBs except dioxin-like PCBs. Dioxin-like PCBs should be included in the 2,3,7,8-TCDD TE concentration entry.

\*\*\*Read the directions, in their entirety, on the 'Directions' Tab before use.\*\*\*

sample information	Site Number:	2019-4863
	Site Name:	Pigeon Property
	Sample Number:	SB-131
	Sample Depth:	0-18"
	Sample Date:	6/8/22

1. Select chemicals from dropdown list				2. Input reported concentrations in mg/kg	3. View autocalculated ILCR and HQ associated with each individual chemical	
Analyte	CASRN	RB-RSV <sub>c</sub> (mg/kg)	RB-RSV <sub>r</sub> (mg/kg)	Sample Concentration (mg/kg)	Calculated Sample ILCR (unitless)	Calculated Sample HQ (unitless)
2,3,7,8-TCDD TEQ <sup>a</sup>	1746-01-6 <sup>b</sup>	2.25E-06	4.91E-05		Analyte conc. < RL	Analyte conc. < RL
BaP-TE <sup>c</sup>	—	7.28E-02	NA		Analyte conc. < RL	No noncancer RB-RSV
Benzo(a)pyrene <sup>d</sup>	50-32-8	NA	1.72E+01		Included in BaP-TE	Analyte conc. < RL
Total PCBs <sup>e</sup>	1336-36-3	1.14E-01	1.13E+00		Analyte conc. < RL	Analyte conc. < RL
Acetaminophen	34256-82-1	NA	1.22E+03		No cancer RB-RSV	Analyte conc. < RL
Acetone	67-64-1	NA	4.06E+04		No cancer RB-RSV	Analyte conc. < RL
Alachlor	15972-60-8	NA	6.08E+01		No cancer RB-RSV	Analyte conc. < RL
Aldrin	309-00-2	2.02E-02	2.10E+00		Analyte conc. < RL	Analyte conc. < RL
Aluminum	7429-90-5	NA	7.25E+04		No cancer RB-RSV	Analyte conc. < RL
Antimony	7440-36-0	NA	2.60E+01		No cancer RB-RSV	Analyte conc. < RL
Barium	7440-39-3	NA	1.12E+04		No cancer RB-RSV	Analyte conc. < RL
Benzoyl chloride	17804-33-2	1.16E+02	7.90E+02		Analyte conc. < RL	Analyte conc. < RL
Benzene	71-43-2	6.98E-01	1.11E+02		Analyte conc. < RL	Analyte conc. < RL
Beryllium	7440-41-7	5.67E+02	3.45E+01		Analyte conc. < RL	Analyte conc. < RL
Bis(2-chloro-1-methyl ethyl) ether	108-60-1	NA	2.80E+03		No cancer RB-RSV	Analyte conc. < RL
Boron	7440-42-8	NA	1.47E+04		No cancer RB-RSV	Analyte conc. < RL
Bromate	15541-45-4	5.36E-01	2.93E+02		Analyte conc. < RL	Analyte conc. < RL
Bromochloromethane	74-97-5	NA	1.93E+02		No cancer RB-RSV	Analyte conc. < RL
Bromobenzyl chloride	1689-84-5	2.69E+00	9.12E+02		Analyte conc. < RL	Analyte conc. < RL
Butylbenzene, n-	104-51-8	NA	3.50E+03		No cancer RB-RSV	Analyte conc. < RL
Butylbenzene, sec-	135-98-8	NA	7.01E+03		No cancer RB-RSV	Analyte conc. < RL
Butylbenzene, tert-	98-06-6	NA	7.01E+03		No cancer RB-RSV	Analyte conc. < RL
Cadmium (food)	7440-43-9	7.56E+02	6.86E+00		Analyte conc. < RL	Analyte conc. < RL
Carbaryl	63-25-2	3.17E+02	6.08E+03		Analyte conc. < RL	Analyte conc. < RL
Carbon Disulfide	75-15-0	NA	6.08E+02		No cancer RB-RSV	Analyte conc. < RL
Carbon tetrachloride	56-23-5	3.72E-01	1.30E+02		Analyte conc. < RL	Analyte conc. < RL
Chlorobenzene	108-90-7	NA	4.14E+02		No cancer RB-RSV	Analyte conc. < RL
Chromium (III) (insoluble salts)	16065-83-1	NA	4.02E+04		No cancer RB-RSV	Analyte conc. < RL
Chromium (VI)	18540-29-9	9.06E-02	1.16E+02		Analyte conc. < RL	Analyte conc. < RL
Cobalt	7440-48-4	1.51E+02	2.19E+01		Analyte conc. < RL	Analyte conc. < RL
Copper	7440-50-8	NA	1.04E+04		No cancer RB-RSV	Analyte conc. < RL
Di (2-ethylhexyl) phthalate	117-81-7	1.98E+01	1.22E+03		Analyte conc. < RL	Analyte conc. < RL
Dibromochloropropane	96-12-8	6.00E-03	6.63E+00		Analyte conc. < RL	Analyte conc. < RL
Dibromoethane, 1,2-	106-93-4	2.27E-02	1.15E+02		Analyte conc. < RL	Analyte conc. < RL
Dichloroethane, 1,1-	75-34-3	2.10E+00	1.40E+04		Analyte conc. < RL	Analyte conc. < RL
Dichloroethane, 1,2-	107-06-2	2.85E-01	4.95E+01		Analyte conc. < RL	Analyte conc. < RL
Dichloroethylene, cis 1,2-	156-59-2	NA	1.40E+02		No cancer RB-RSV	Analyte conc. < RL
Dichloroethylene, trans 1,2-	156-60-5	NA	1.40E+03		No cancer RB-RSV	Analyte conc. < RL
Dichloropropane, 1,2-	78-87-5	1.51E+00	2.63E+01		Analyte conc. < RL	Analyte conc. < RL
Dioxane, 1,4-	123-91-1	2.78E+00	1.05E+03		Analyte conc. < RL	Analyte conc. < RL
Ethylbenzene	100-41-4	3.68E+00	4.45E+02		Analyte conc. < RL	Analyte conc. < RL
Fluoranthene	206-44-0	NA	2.30E+03	1.20E-02	No cancer RB-RSV	5.21E-06
Fluorene	86-73-7	NA	2.30E+03		No cancer RB-RSV	Analyte conc. < RL
Hexachlorobenzene	118-74-1	1.31E-01	5.61E+01		Analyte conc. < RL	Analyte conc. < RL
Hexahydro-1,3,5-trinitro-1,3,5-triazine (RDX)	121-82-4	4.60E+00	2.90E+02		Analyte conc. < RL	Analyte conc. < RL
Hydrogen cyanide	74-90-9	NA	4.91E+01		No cancer RB-RSV	Analyte conc. < RL
Iron	7439-89-6	NA	5.13E+04		No cancer RB-RSV	Analyte conc. < RL
Isopropylbenzene (cumene)	98-82-8	NA	2.56E+02		No cancer RB-RSV	Analyte conc. < RL
Manganese (non-diet)	7439-96-5	NA	1.12E+03		No cancer RB-RSV	Analyte conc. < RL
Mercury (elemental)	7439-97-6	NA	3.13E+00		No cancer RB-RSV	Analyte conc. < RL
Methyl ethyl ketone	78-93-3	NA	1.70E+04		No cancer RB-RSV	Analyte conc. < RL
Methyl tert-butyl ether (MTBE)	1634-04-4	NA	6.49E+02		No cancer RB-RSV	Analyte conc. < RL
Molybdenum	7439-98-7	NA	3.66E+02		No cancer RB-RSV	Analyte conc. < RL
Naphthalene	91-20-3	2.72E+00	2.24E+02		Analyte conc. < RL	Analyte conc. < RL
Nickel	7440-02-0	5.23E+03	9.40E+02		Analyte conc. < RL	Analyte conc. < RL
(HMX)	2691-41-0	NA	3.70E+03		No cancer RB-RSV	Analyte conc. < RL
Pentachlorophenol	87-86-5	4.84E-01	2.37E+02		Analyte conc. < RL	Analyte conc. < RL
Pentaerythritol tetranitrate (PETN)	78-11-5	NA	1.22E+02		No cancer RB-RSV	Analyte conc. < RL
Perchlorate	14797-23-0	NA	5.13E+01		No cancer RB-RSV	Analyte conc. < RL
Perfluorheptanoic acid (PFHpA)	375-85-9	NA	1.22E+00		No cancer RB-RSV	Analyte conc. < RL
Perfluorohexane sulfonic acid (PFHxS)	355-46-4	NA	1.22E+00		No cancer RB-RSV	Analyte conc. < RL
Perfluorononanoic acid (PFNA)	375-95-1	NA	1.22E+00		No cancer RB-RSV	Analyte conc. < RL
Perfluorooctane sulfonic acid (PFOS)	1763-23-1	NA	1.22E+00		No cancer RB-RSV	Analyte conc. < RL
Perfluorooctanoic acid (PFOA)	335-67-1	3.96E+00	1.22E+00		Analyte conc. < RL	Analyte conc. < RL
Propoxur (Baygon)	114-26-1	7.88E+01	2.43E+02		Analyte conc. < RL	Analyte conc. < RL
Propyl benzene, n-	103-65-1	NA	2.53E+02		No cancer RB-RSV	Analyte conc. < RL
Selenium	7782-49-2	NA	3.66E+02		No cancer RB-RSV	Analyte conc. < RL
Silver	7440-22-4	NA	2.37E+02		No cancer RB-RSV	Analyte conc. < RL
Tetrachloroethane, 1,1,1,2-	630-20-6	1.32E+00	2.10E+03		Analyte conc. < RL	Analyte conc. < RL
Tetrachloroethylene	127-18-4	2.38E+00	1.13E+02		Analyte conc. < RL	Analyte conc. < RL
Thallium (soluble Thallium)	7440-28-0**	NA	7.33E-01		No cancer RB-RSV	Analyte conc. < RL
Toluene	108-88-3	NA	7.06E+02		No cancer RB-RSV	Analyte conc. < RL
Trichloroethylene	79-01-6	6.81E-01	6.21E+00		Analyte conc. < RL	Analyte conc. < RL
Trichloropropane, 1,2,3-	96-18-4	3.11E-03	8.67E+00		Analyte conc. < RL	Analyte conc. < RL
Trimethylbenzene, 1,2,3-	526-73-8	NA	2.06E+02		No cancer RB-RSV	Analyte conc. < RL
Trimethylbenzene, 1,2,4-	95-63-6	NA	1.66E+02		No cancer RB-RSV	Analyte conc. < RL
Trimethylbenzene, 1,3,5-	108-67-8	NA	1.44E+02		No cancer RB-RSV	Analyte conc. < RL
Trinitrotoluene, 2,4,6- (TNT)	118-96-7	1.15E+01	3.49E+01		Analyte conc. < RL	Analyte conc. < RL
Uranium (soluble salts)	NA	NA	4.40E+01		No cancer RB-RSV	Analyte conc. < RL
Vanadium	7440-62-2	NA	2.77E+00		No cancer RB-RSV	Analyte conc. < RL
Vinyl chloride	75-01-4	9.83E-02	8.51E+01		Analyte conc. < RL	Analyte conc. < RL
Xylenes	1330-20-7	NA	2.52E+02		No cancer RB-RSV	Analyte conc. < RL
Zinc	7440-66-6	NA	2.20E+04		No cancer RB-RSV	Analyte conc. < RL
<sup>a</sup> RB-RSV <sub>c</sub> corresponds to a one-in-one-million ILCR. See RULE Appendix E, Table 1.					Sample Cumulative ILCR:	Sample HI:
<sup>b</sup> RB-RSV <sub>r</sub> corresponds to a HQ of 1 based on Hypothetical Young Child Resident scenario. See RULE Appendix E, Table 1.					0.00E+00	5.21E-06

Notes:

HI = Hazard Index (sum of Hazard Quotients)

HQ = Hazard Quotient

ILCR = Incremental Lifetime Cancer Risk

NA = Not Available

RB-RSV<sub>c</sub> = Risk-Based Residential Soil Value based on cancer

RB-RSV<sub>r</sub> = Risk-Based Residential Soil Value based on noncancer endpoint

\*- CAS Number for 2,3,7,8-TCDD

\*\* - CAS Number is for Metallic Thallium

c. The 2,3,7,8-TCDD TEQ row should include the sum of the concentrations of all dioxins, furans, and dioxin-like PCBs reported as 2,3,7,8-TCDD toxic equivalents.

d. The BaP-TE row should include the sum of the concentrations for all carcinogenic PAHs (including benzo(a)pyrene) reported as Benzo(a)pyrene toxic equivalents. See direction 6 for designated urban background locations.

e. Benzo(a)pyrene row should include only the concentration of benzo(a)pyrene in order to address its noncancer hazards.

f. The Total PCBs row should include the sum of the concentrations for all PCBs except dioxin-like PCBs. Dioxin-like PCBs should be included in the 2,3,7,8-TCDD TE concentration entry.

\*\*\*Read the directions, in their entirety, on the 'Directions' Tab before use.\*\*\*

sample information

Site Number:	2019-4863
Site Name:	Pigeon Property
Sample Number:	SB-132
Sample Depth:	0-18"
Sample Date:	6/8/22

1. Select chemicals from dropdown list

2. Input reported concentrations in mg/kg

3. View autocalculated ILCR and HQ associated with each individual chemical

Analyte	CASRN	RB-RSV <sub>c</sub> (mg/kg)	<sup>b</sup> RB-RSV <sub>c</sub> (mg/kg)	Sample Concentration (mg/kg)	Calculated Sample ILCR (unitless)	Calculated Sample HQ (unitless)
2,3,7,8-TCDD TEQ <sup>d</sup>	1746-01-6 <sup>e</sup>	2.25E-06	4.91E-05		Analyte conc. < RL	Analyte conc. < RL
BaP-TE <sup>f</sup>	—	7.28E-02	NA		Analyte conc. < RL	No noncancer RB-RSV
Benzo(a)pyrene <sup>g</sup>	50-32-8	NA	1.72E+01		Included in BaP-TE	Analyte conc. < RL
Total PCBs <sup>h</sup>	1336-36-3	1.14E-01	1.13E+00		Analyte conc. < RL	Analyte conc. < RL
Acetamin	34256-82-1	NA	1.22E+03		No cancer RB-RSV	Analyte conc. < RL
Acetone	67-64-1	NA	4.06E+04		No cancer RB-RSV	Analyte conc. < RL
Alachlor	15972-60-8	NA	6.08E+01		No cancer RB-RSV	Analyte conc. < RL
Aldrin	309-00-2	2.02E-02	2.10E+00		Analyte conc. < RL	Analyte conc. < RL
Aluminum	7429-90-5	NA	7.75E+04		No cancer RB-RSV	Analyte conc. < RL
Antimony	7440-36-0	NA	2.60E+01		No cancer RB-RSV	Analyte conc. < RL
Barium	7440-39-3	NA	1.12E+04		No cancer RB-RSV	Analyte conc. < RL
Benzoyl	17804-33-2	1.16E+02	7.90E+02		Analyte conc. < RL	Analyte conc. < RL
Benzene	71-43-2	6.98E-01	1.11E+02		Analyte conc. < RL	Analyte conc. < RL
Beryllium	7440-41-7	5.67E+02	3.45E+01		Analyte conc. < RL	Analyte conc. < RL
Bis(2-chloro-1-methyl ethyl) ether	108-60-1	NA	2.80E+03		No cancer RB-RSV	Analyte conc. < RL
Boron	7440-42-8	NA	1.47E+04		No cancer RB-RSV	Analyte conc. < RL
Bromate	15541-45-4	5.36E-01	2.93E+02		Analyte conc. < RL	Analyte conc. < RL
Bromochloromethane	74-97-5	NA	1.93E+02		No cancer RB-RSV	Analyte conc. < RL
Bromonitryl	1689-84-5	2.69E+00	9.12E+02		Analyte conc. < RL	Analyte conc. < RL
Butylbenzene, n-	104-51-8	NA	3.50E+03		No cancer RB-RSV	Analyte conc. < RL
Butylbenzene, sec-	135-98-8	NA	7.01E+03		No cancer RB-RSV	Analyte conc. < RL
Butylbenzene, tert-	98-06-6	NA	7.01E+03		No cancer RB-RSV	Analyte conc. < RL
Cadmium (food)	7440-43-9	7.56E+02	6.86E+00		Analyte conc. < RL	Analyte conc. < RL
Carbaryl	63-25-2	3.17E+02	6.08E+03		Analyte conc. < RL	Analyte conc. < RL
Carbon Disulfide	75-15-0	NA	6.08E+02		No cancer RB-RSV	Analyte conc. < RL
Carbon tetrachloride	56-23-5	3.72E-01	1.30E+02		Analyte conc. < RL	Analyte conc. < RL
Chlorobenzene	108-90-7	NA	4.14E+02		No cancer RB-RSV	Analyte conc. < RL
Chromium (III) (insoluble salts)	16065-83-1	NA	4.02E+04		No cancer RB-RSV	Analyte conc. < RL
Chromium (VI)	18540-29-9	9.06E-02	1.16E+02		Analyte conc. < RL	Analyte conc. < RL
Cobalt	7440-48-4	1.51E+02	2.19E+01		Analyte conc. < RL	Analyte conc. < RL
Copper	7440-50-8	NA	1.04E+04		No cancer RB-RSV	Analyte conc. < RL
Di (2-ethylhexyl) phthalate	117-81-7	1.98E+01	1.22E+03		Analyte conc. < RL	Analyte conc. < RL
Dibromochloropropane	96-12-8	6.00E-03	6.63E+00		Analyte conc. < RL	Analyte conc. < RL
Dibromoethane, 1,2-	106-93-4	2.27E-02	1.15E+02		Analyte conc. < RL	Analyte conc. < RL
Dichloroethane, 1,1-	75-34-3	2.10E+00	1.40E+04		Analyte conc. < RL	Analyte conc. < RL
Dichloroethane, 1,2-	107-06-2	2.85E-01	4.95E+01		Analyte conc. < RL	Analyte conc. < RL
Dichloroethylene, cis 1,2-	156-59-2	NA	1.40E+02		No cancer RB-RSV	Analyte conc. < RL
Dichloroethylene, trans 1,2-	156-60-5	NA	1.40E+03		No cancer RB-RSV	Analyte conc. < RL
Dichloropropane, 1,2-	78-87-5	1.31E+00	2.63E+01		Analyte conc. < RL	Analyte conc. < RL
Dioxane, 1,4-	123-91-1	2.78E+00	1.05E+03		Analyte conc. < RL	Analyte conc. < RL
Ethylbenzene	100-41-4	3.68E+00	4.45E+02		Analyte conc. < RL	Analyte conc. < RL
Fluoranthene	206-44-0	NA	2.30E+03	4.10E-02	No cancer RB-RSV	1.78E-05
Fluorene	86-73-7	NA	2.30E+03		No cancer RB-RSV	Analyte conc. < RL
Hexachlorobenzene	118-74-1	1.31E-01	5.61E+01		Analyte conc. < RL	Analyte conc. < RL
Hexahydro-1,3,5-trinitro-1,3,5-triazine (RDX)	121-82-4	4.60E+00	2.90E+02		Analyte conc. < RL	Analyte conc. < RL
Hydrogen cyanide	74-90-9	NA	4.91E+01		No cancer RB-RSV	Analyte conc. < RL
Iron	7439-89-6	NA	5.13E+04		No cancer RB-RSV	Analyte conc. < RL
Isopropylbenzene (cumene)	98-82-8	NA	2.56E+02		No cancer RB-RSV	Analyte conc. < RL
Manganese (non-diet)	7439-96-5	NA	1.12E+03		No cancer RB-RSV	Analyte conc. < RL
Mercury (elemental)	7439-97-6	NA	3.13E+00		No cancer RB-RSV	Analyte conc. < RL
Methyl ethyl ketone	78-93-3	NA	1.70E+04		No cancer RB-RSV	Analyte conc. < RL
Methyl tert-butyl ether (MTBE)	1634-04-4	NA	6.49E+02		No cancer RB-RSV	Analyte conc. < RL
Molybdenum	7439-98-7	NA	3.66E+02		No cancer RB-RSV	Analyte conc. < RL
Naphthalene	91-20-3	2.72E+00	2.24E+02		Analyte conc. < RL	Analyte conc. < RL
Nickel	7440-02-0	5.23E+03	9.40E+02		Analyte conc. < RL	Analyte conc. < RL
(HMX)	2691-41-0	NA	3.70E+03		No cancer RB-RSV	Analyte conc. < RL
Pentachlorophenol	87-86-5	4.84E-01	2.37E+02		Analyte conc. < RL	Analyte conc. < RL
Pentaerythritol tetranitrate (PETN)	78-11-5	NA	1.22E+02		No cancer RB-RSV	Analyte conc. < RL
Perchlorate	14797-23-0	NA	5.13E+01		No cancer RB-RSV	Analyte conc. < RL
Perfluorheptanoic acid (PFHpA)	375-85-9	NA	1.22E+00		No cancer RB-RSV	Analyte conc. < RL
Perfluorohexane sulfonic acid (PFHxS)	355-46-4	NA	1.22E+00		No cancer RB-RSV	Analyte conc. < RL
Perfluorononanoic acid (PFNA)	375-95-1	NA	1.22E+00		No cancer RB-RSV	Analyte conc. < RL
Perfluorooctane sulfonic acid (PFOS)	1763-23-1	NA	1.22E+00		No cancer RB-RSV	Analyte conc. < RL
Perfluorooctanoic acid (PFOA)	335-67-1	3.96E+00	1.22E+00		Analyte conc. < RL	Analyte conc. < RL
Propoxur (Baygon)	114-26-1	7.88E+01	2.43E+02		Analyte conc. < RL	Analyte conc. < RL
Propyl benzene, n-	103-65-1	NA	2.53E+02		No cancer RB-RSV	Analyte conc. < RL
Selenium	7782-49-2	NA	3.66E+02		No cancer RB-RSV	Analyte conc. < RL
Silver	7440-22-4	NA	2.37E+02		No cancer RB-RSV	Analyte conc. < RL
Tetrachloroethane, 1,1,1,2-	630-20-6	1.32E+00	2.10E+03		Analyte conc. < RL	Analyte conc. < RL
Tetrachloroethylene	127-18-4	2.38E+00	1.13E+02		Analyte conc. < RL	Analyte conc. < RL
Thallium (soluble Thallium)	7440-28-0**	NA	7.33E-01		No cancer RB-RSV	Analyte conc. < RL
Toluene	108-88-3	NA	7.06E+02		No cancer RB-RSV	Analyte conc. < RL
Trichloroethylene	79-01-6	6.81E-01	6.21E+00		Analyte conc. < RL	Analyte conc. < RL
Trichloropropane, 1,2,3-	96-18-4	3.11E-03	8.67E+00		Analyte conc. < RL	Analyte conc. < RL
Trimethylbenzene, 1,2,3-	526-73-8	NA	2.06E+02		No cancer RB-RSV	Analyte conc. < RL
Trimethylbenzene, 1,2,4-	95-63-6	NA	1.66E+02		No cancer RB-RSV	Analyte conc. < RL
Trimethylbenzene, 1,3,5-	108-67-8	NA	1.44E+02		No cancer RB-RSV	Analyte conc. < RL
Trinitrotoluene, 2,4,6- (TNT)	118-96-7	1.15E+01	3.49E+01		Analyte conc. < RL	Analyte conc. < RL
Uranium (soluble salts)	NA	NA	4.40E+01		No cancer RB-RSV	Analyte conc. < RL
Vanadium	7440-62-2	NA	2.77E+00		No cancer RB-RSV	Analyte conc. < RL
Vinyl chloride	75-01-4	9.83E-02	8.51E+01		Analyte conc. < RL	Analyte conc. < RL
Xylenes	1330-20-7	NA	2.52E+02		No cancer RB-RSV	Analyte conc. < RL
Zinc	7440-66-6	NA	2.20E+04		No cancer RB-RSV	Analyte conc. < RL
				Sample Cumulative ILCR:	0.00E+00	Sample HI: 1.78E-05

Notes:  
HI = Hazard Index (sum of Hazard Quotients)  
HQ = Hazard Quotient  
ILCR = Incremental Lifetime Cancer Risk  
NA = Not Available  
RB-RSV<sub>c</sub> = Risk-Based Residential Soil Value based on cancer  
RB-RSV<sub>n</sub> = Risk-Based Residential Soil Value based on noncancer endpoint  
\* - CAS Number for 2,3,7,8-TCDD  
\*\* - CAS Number is for Metallic Thallium

c. The 2,3,7,8-TCDD TEQ row should include the sum of the concentrations of all dioxins, furans, and dioxin-like PCBs reported as 2,3,7,8-TCDD toxic equivalents.  
d. The BaP-TE row should include the sum of the concentrations for all carcinogenic PAHs (including benzo(a)pyrene) reported as Benzo(a)pyrene toxic equivalents. See direction 6 for designated urban background locations.  
e. Benzo(a)pyrene row should include only the concentration of benzo(a)pyrene in order to address its noncancer hazards.  
f. The Total PCBs row should include the sum of the concentrations for all PCBs except dioxin-like PCBs. Dioxin-like PCBs should be included in the 2,3,7,8-TCDD TE concentration entry.

\*\*\*Read the directions, in their entirety, on the 'Directions' Tab before use.\*\*\*

sample information	Site Number:	2019-4863
	Site Name:	Pigeon Property
	Sample Number:	SB-133
	Sample Depth:	0-18"
	Sample Date:	6/8/22

1. Select chemicals from dropdown list				2. Input reported concentrations in mg/kg	3. View autocalculated ILCR and HQ associated with each individual chemical	
Analyte	CASRN	RB-RSV <sub>u</sub> (mg/kg)	RB-RSV <sub>c</sub> (mg/kg)	Sample Concentration (mg/kg)	Calculated Sample ILCR (unitless)	Calculated Sample HQ (unitless)
2,3,7,8-TCDD TEQ <sup>a</sup>	1746-01-6 <sup>b</sup>	2.25E-06	4.91E-05		Analyte conc. < RL	Analyte conc. < RL
BaP-TE <sup>c</sup>	—	7.28E-02	NA		Analyte conc. < RL	No noncancer RB-RSV
Benzo(a)pyrene <sup>d</sup>	50-32-8	NA	1.72E+01		Included in BaP-TE	Analyte conc. < RL
Total PCBs <sup>e</sup>	1336-36-3	1.14E-01	1.13E+00		Analyte conc. < RL	Analyte conc. < RL
Acetamin	34256-82-1	NA	1.22E+03		No cancer RB-RSV	Analyte conc. < RL
Acetone	67-64-1	NA	4.06E+04		No cancer RB-RSV	Analyte conc. < RL
Alachlor	15972-60-8	NA	6.08E+01		No cancer RB-RSV	Analyte conc. < RL
Aldrin	309-00-2	2.02E-02	2.10E+00		Analyte conc. < RL	Analyte conc. < RL
Aluminum	7429-90-5	NA	7.25E+04		No cancer RB-RSV	Analyte conc. < RL
Antimony	7440-36-0	NA	2.60E+01		No cancer RB-RSV	Analyte conc. < RL
Barium	7440-39-3	NA	1.12E+04		No cancer RB-RSV	Analyte conc. < RL
Benzoyl	17804-33-2	1.16E+02	7.90E+02		Analyte conc. < RL	Analyte conc. < RL
Benzene	71-43-2	6.98E-01	1.11E+02		Analyte conc. < RL	Analyte conc. < RL
Beryllium	7440-41-7	5.67E+02	3.45E+01		Analyte conc. < RL	Analyte conc. < RL
Bis(2-chloro-1-methyl ethyl)ether	108-60-1	NA	2.80E+03		No cancer RB-RSV	Analyte conc. < RL
Boron	7440-42-8	NA	1.47E+04		No cancer RB-RSV	Analyte conc. < RL
Bromate	15541-45-4	5.36E-01	2.93E+02		Analyte conc. < RL	Analyte conc. < RL
Bromochloromethane	74-97-5	NA	1.93E+02		No cancer RB-RSV	Analyte conc. < RL
Bromobenzyl	1689-84-5	2.69E+00	9.12E+02		Analyte conc. < RL	Analyte conc. < RL
Butylbenzene, n-	104-51-8	NA	3.50E+03		No cancer RB-RSV	Analyte conc. < RL
Butylbenzene, sec-	135-98-8	NA	7.01E+03		No cancer RB-RSV	Analyte conc. < RL
Butylbenzene, tert-	98-06-6	NA	7.01E+03		No cancer RB-RSV	Analyte conc. < RL
Cadmium (food)	7440-43-9	7.56E+02	6.86E+00		Analyte conc. < RL	Analyte conc. < RL
Carbaryl	63-25-2	3.17E+02	6.08E+03		Analyte conc. < RL	Analyte conc. < RL
Carbon Disulfide	75-15-0	NA	6.08E+02		No cancer RB-RSV	Analyte conc. < RL
Carbon tetrachloride	56-23-5	3.72E-01	1.30E+02		Analyte conc. < RL	Analyte conc. < RL
Chlorobenzene	108-90-7	NA	4.14E+02		No cancer RB-RSV	Analyte conc. < RL
Chromium (III) (insoluble salts)	16065-83-1	NA	4.02E+04		No cancer RB-RSV	Analyte conc. < RL
Chromium (VI)	18540-29-9	9.06E-02	1.16E+02		Analyte conc. < RL	Analyte conc. < RL
Cobalt	7440-48-4	1.51E+02	2.19E+01		Analyte conc. < RL	Analyte conc. < RL
Copper	7440-50-8	NA	1.04E+04		No cancer RB-RSV	Analyte conc. < RL
Di (2-ethylhexyl) phthalate	117-81-7	1.98E+01	1.22E+03		Analyte conc. < RL	Analyte conc. < RL
Dibromochloropropane	96-12-8	6.00E-03	6.63E+00		Analyte conc. < RL	Analyte conc. < RL
Dibromoethane, 1,2-	106-93-4	2.27E-02	1.15E+02		Analyte conc. < RL	Analyte conc. < RL
Dichloroethane, 1,1-	75-34-3	2.10E+00	1.40E+04		Analyte conc. < RL	Analyte conc. < RL
Dichloroethane, 1,2-	107-06-2	2.85E-01	4.95E+01		Analyte conc. < RL	Analyte conc. < RL
Dichloroethylene, cis 1,2-	156-59-2	NA	1.40E+02		No cancer RB-RSV	Analyte conc. < RL
Dichloroethylene, trans 1,2-	156-60-5	NA	1.40E+03		No cancer RB-RSV	Analyte conc. < RL
Dichloropropane, 1,2-	78-87-5	1.31E+00	2.63E+01		Analyte conc. < RL	Analyte conc. < RL
Dioxane, 1,4-	123-91-1	2.78E+00	1.05E+03		Analyte conc. < RL	Analyte conc. < RL
Ethylbenzene	100-41-4	3.68E+00	4.45E+02		Analyte conc. < RL	Analyte conc. < RL
Fluoranthene	206-44-0	NA	2.30E+03	1.20E-02	No cancer RB-RSV	5.21E-06
Fluorene	86-73-7	NA	2.30E+03		No cancer RB-RSV	Analyte conc. < RL
Hexachlorobenzene	118-74-1	1.31E-01	5.61E+01		Analyte conc. < RL	Analyte conc. < RL
Hexahydro-1,3,5-trinitro-1,3,5-triazine (RDX)	121-82-4	4.60E+00	2.90E+02		Analyte conc. < RL	Analyte conc. < RL
Hydrogen cyanide	74-90-9	NA	4.91E+01		No cancer RB-RSV	Analyte conc. < RL
Iron	7439-89-6	NA	5.13E+04		No cancer RB-RSV	Analyte conc. < RL
Isopropylbenzene (cumene)	98-82-8	NA	2.56E+02		No cancer RB-RSV	Analyte conc. < RL
Manganese (non-diet)	7439-96-5	NA	1.12E+03		No cancer RB-RSV	Analyte conc. < RL
Mercury (elemental)	7439-97-6	NA	3.13E+00		No cancer RB-RSV	Analyte conc. < RL
Methyl ethyl ketone	78-93-3	NA	1.70E+04		No cancer RB-RSV	Analyte conc. < RL
Methyl tert-butyl ether (MTBE)	1634-04-4	NA	6.49E+02		No cancer RB-RSV	Analyte conc. < RL
Molybdenum	7439-98-7	NA	3.66E+02		No cancer RB-RSV	Analyte conc. < RL
Naphthalene	91-20-3	2.72E+00	2.24E+02		Analyte conc. < RL	Analyte conc. < RL
Nickel	7440-02-0	5.23E+03	9.40E+02		Analyte conc. < RL	Analyte conc. < RL
(HNX)	2691-41-0	NA	3.70E+03		No cancer RB-RSV	Analyte conc. < RL
Pentachlorophenol	87-86-5	4.84E-01	2.37E+02		Analyte conc. < RL	Analyte conc. < RL
Pentaerythritol tetranitrate (PETN)	78-11-5	NA	1.22E+02		No cancer RB-RSV	Analyte conc. < RL
Perchlorate	14797-23-0	NA	5.13E+01		No cancer RB-RSV	Analyte conc. < RL
Perfluorheptanoic acid (PFHpA)	375-85-9	NA	1.22E+00		No cancer RB-RSV	Analyte conc. < RL
Perfluorohexane sulfonic acid (PFHxS)	355-46-4	NA	1.22E+00		No cancer RB-RSV	Analyte conc. < RL
Perfluorononanoic acid (PFNA)	375-95-1	NA	1.22E+00		No cancer RB-RSV	Analyte conc. < RL
Perfluorooctane sulfonic acid (PFOS)	1763-23-1	NA	1.22E+00		No cancer RB-RSV	Analyte conc. < RL
Perfluorooctanoic acid (PFOA)	335-67-1	3.96E+00	1.22E+00		Analyte conc. < RL	Analyte conc. < RL
Propoxur (Baygon)	114-26-1	7.88E+01	2.43E+02		Analyte conc. < RL	Analyte conc. < RL
Propyl benzene, n-	103-65-1	NA	2.53E+02		No cancer RB-RSV	Analyte conc. < RL
Selenium	7782-49-2	NA	3.66E+02		No cancer RB-RSV	Analyte conc. < RL
Silver	7440-22-4	NA	2.37E+02		No cancer RB-RSV	Analyte conc. < RL
Tetrachloroethane, 1,1,1,2-	630-20-6	1.32E+00	2.10E+03		Analyte conc. < RL	Analyte conc. < RL
Tetrachloroethylene	127-18-4	2.38E+00	1.13E+02		Analyte conc. < RL	Analyte conc. < RL
Thallium (soluble Thallium)	7440-28-0 <sup>**</sup>	NA	7.33E-01		No cancer RB-RSV	Analyte conc. < RL
Toluene	108-88-3	NA	7.06E+02		No cancer RB-RSV	Analyte conc. < RL
Trichloroethylene	79-01-6	6.81E-01	6.21E+00		Analyte conc. < RL	Analyte conc. < RL
Trichloropropane, 1,2,3-	96-18-4	3.11E-03	8.67E+00		Analyte conc. < RL	Analyte conc. < RL
Trimethylbenzene, 1,2,3-	526-73-8	NA	2.06E+02		No cancer RB-RSV	Analyte conc. < RL
Trimethylbenzene, 1,2,4-	95-63-6	NA	1.66E+02		No cancer RB-RSV	Analyte conc. < RL
Trimethylbenzene, 1,3,5-	108-67-8	NA	1.44E+02		No cancer RB-RSV	Analyte conc. < RL
Trinitrotoluene, 2,4,6- (TNT)	118-96-7	1.15E+01	3.49E+01		Analyte conc. < RL	Analyte conc. < RL
Uranium (soluble salts)	NA	NA	4.40E+01		No cancer RB-RSV	Analyte conc. < RL
Vanadium	7440-62-2	NA	2.77E+00		No cancer RB-RSV	Analyte conc. < RL
Vinyl chloride	75-01-4	9.83E-02	8.51E+01		Analyte conc. < RL	Analyte conc. < RL
Xylenes	1330-20-7	NA	2.52E+02		No cancer RB-RSV	Analyte conc. < RL
Zinc	7440-66-6	NA	2.20E+04		No cancer RB-RSV	Analyte conc. < RL
<sup>a</sup> RB-RSV <sub>u</sub> corresponds to a one-in-one-million ILCR. See RUEL Appendix E, Table 1.					Sample Cumulative ILCR:	Sample HI:
<sup>b</sup> RB-RSV <sub>c</sub> corresponds to a HQ of 1 based on Hypothetical Young Child Resident scenario. See RUEL Appendix E, Table 1.					0.00E+00	5.21E-06

Notes:

HI = Hazard Index (sum of Hazard Quotients)

HQ = Hazard Quotient

ILCR = Incremental Lifetime Cancer Risk

NA = Not Available

RB-RSV<sub>u</sub> = Risk-Based Residential Soil Value based on cancer

RB-RSV<sub>c</sub> = Risk-Based Residential Soil Value based on noncancer endpoint

\*- CAS Number for 2,3,7,8-TCDD

\*\* - CAS Number is for Metallic Thallium

c. The 2,3,7,8-TCDD TEQ row should include the sum of the concentrations of all dioxins, furans, and dioxin-like PCBs reported as 2,3,7,8-TCDD toxic equivalents.

d. The BaP-TE row should include the sum of the concentrations for all carcinogenic PAHs (including benzo(a)pyrene) reported as Benzo(a)pyrene toxic equivalents. See direction 6 for designated urban background locations.

e. Benzo(a)pyrene row should include only the concentration of benzo(a)pyrene in order to address its noncancer hazards.

f. The Total PCBs row should include the sum of the concentrations for all PCBs except dioxin-like PCBs. Dioxin-like PCBs should be included in the 2,3,7,8-TCDD TE concentration entry.

\*\*\*Read the directions, in their entirety, on the 'Directions' Tab before use.\*\*\*

sample information	Site Number:	2019-4863
	Site Name:	Pigeon Property
	Sample Number:	SB-124 Duplicate
	Sample Depth:	0-18"
	Sample Date:	6/8/22

1. Select chemicals from dropdown list				2. Input reported concentrations in mg/kg	3. View autocalculated ILCR and HQ associated with each individual chemical	
Analyte	CASRN	RB-RSV <sub>1</sub> (mg/kg)	RB-RSV <sub>2</sub> (mg/kg)	Sample Concentration (mg/kg)	Calculated Sample ILCR (unitless)	Calculated Sample HQ (unitless)
2,3,7,8-TCDD TEQ <sup>a</sup>	1746-01-6 <sup>b</sup>	2.25E-06	4.91E-05		Analyte conc. < RL	Analyte conc. < RL
BaP-TE <sup>c</sup>	—	7.28E-02	NA		Analyte conc. < RL	No noncancer RB-RSV
Benzo(a)pyrene <sup>d</sup>	50-32-8	NA	1.72E+01		Included in BaP-TE	Analyte conc. < RL
Total PCBs <sup>e</sup>	1336-36-3	1.14E-01	1.13E+00		Analyte conc. < RL	Analyte conc. < RL
Acetaminophen	34256-82-1	NA	1.22E+03		No cancer RB-RSV	Analyte conc. < RL
Acetone	67-64-1	NA	4.06E+04		No cancer RB-RSV	Analyte conc. < RL
Alachlor	15972-60-8	NA	6.08E+01		No cancer RB-RSV	Analyte conc. < RL
Aldrin	309-00-2	2.02E-02	2.10E+00		Analyte conc. < RL	Analyte conc. < RL
Aluminum	7429-90-5	NA	7.25E+04		No cancer RB-RSV	Analyte conc. < RL
Antimony	7440-36-0	NA	2.60E+01		No cancer RB-RSV	Analyte conc. < RL
Barium	7440-39-3	NA	1.12E+04		No cancer RB-RSV	Analyte conc. < RL
Benzoyl chloride	17804-35-2	1.16E+02	7.90E+02		Analyte conc. < RL	Analyte conc. < RL
Benzene	71-43-2	6.98E-01	1.11E+02		Analyte conc. < RL	Analyte conc. < RL
Beryllium	7440-41-7	5.67E+02	3.45E+01		Analyte conc. < RL	Analyte conc. < RL
Bis(2-chloro-1-methyl ethyl) ether	108-60-1	NA	2.80E+03		No cancer RB-RSV	Analyte conc. < RL
Boron	7440-42-8	NA	1.47E+04		No cancer RB-RSV	Analyte conc. < RL
Bromate	15541-45-4	5.36E-01	2.93E+02		Analyte conc. < RL	Analyte conc. < RL
Bromochloromethane	74-97-5	NA	1.93E+02		No cancer RB-RSV	Analyte conc. < RL
Bromobenzyl chloride	1689-84-5	2.69E+00	9.12E+02		Analyte conc. < RL	Analyte conc. < RL
Butylbenzene, n-	104-51-8	NA	3.50E+03		No cancer RB-RSV	Analyte conc. < RL
Butylbenzene, sec-	135-98-8	NA	7.01E+03		No cancer RB-RSV	Analyte conc. < RL
Butylbenzene, tert-	98-06-6	NA	7.01E+03		No cancer RB-RSV	Analyte conc. < RL
Cadmium (food)	7440-43-9	7.56E+02	6.86E+00		Analyte conc. < RL	Analyte conc. < RL
Carbaryl	63-25-2	3.17E+02	6.08E+03		Analyte conc. < RL	Analyte conc. < RL
Carbon Disulfide	75-15-0	NA	6.08E+02		No cancer RB-RSV	Analyte conc. < RL
Carbon tetrachloride	56-23-5	3.72E-01	1.30E+02		Analyte conc. < RL	Analyte conc. < RL
Chlorobenzene	108-90-7	NA	4.14E+02		No cancer RB-RSV	Analyte conc. < RL
Chromium (III) (insoluble salts)	16065-83-1	NA	4.02E+04		No cancer RB-RSV	Analyte conc. < RL
Chromium (VI)	18540-29-9	9.06E-02	1.16E+02		Analyte conc. < RL	Analyte conc. < RL
Cobalt	7440-48-4	1.51E+02	2.19E+01		Analyte conc. < RL	Analyte conc. < RL
Copper	7440-50-8	NA	1.04E+04		No cancer RB-RSV	Analyte conc. < RL
Di (2-ethylhexyl) phthalate	117-81-7	1.98E+01	1.22E+03		Analyte conc. < RL	Analyte conc. < RL
Dibromochloropropane	96-12-8	6.00E-03	6.63E+00		Analyte conc. < RL	Analyte conc. < RL
Dibromoethane, 1,2-	106-93-4	2.27E-02	1.15E+02		Analyte conc. < RL	Analyte conc. < RL
Dichloroethane, 1,1-	75-34-3	2.10E+00	1.40E+04		Analyte conc. < RL	Analyte conc. < RL
Dichloroethane, 1,2-	107-06-2	2.85E-01	4.95E+01		Analyte conc. < RL	Analyte conc. < RL
Dichloroethylene, cis 1,2-	156-59-2	NA	1.40E+02		No cancer RB-RSV	Analyte conc. < RL
Dichloroethylene, trans 1,2-	156-60-5	NA	1.40E+03		No cancer RB-RSV	Analyte conc. < RL
Dichloropropane, 1,2-	78-87-5	1.51E+00	2.63E+01		Analyte conc. < RL	Analyte conc. < RL
Dioxane, 1,4-	123-91-1	2.78E+00	1.05E+03		Analyte conc. < RL	Analyte conc. < RL
Ethylbenzene	100-41-4	3.68E+00	4.45E+02		Analyte conc. < RL	Analyte conc. < RL
Fluoranthene	206-44-0	NA	2.30E+03	1.50E-02	No cancer RB-RSV	6.52E-06
Fluorene	86-73-7	NA	2.30E+03		No cancer RB-RSV	Analyte conc. < RL
Hexachlorobenzene	118-74-1	1.31E-01	5.61E+01		Analyte conc. < RL	Analyte conc. < RL
Hexahydro-1,3,5-trinitro-1,3,5-triazine (RDX)	121-82-4	4.60E+00	2.90E+02		Analyte conc. < RL	Analyte conc. < RL
Hydrogen cyanide	74-90-9	NA	4.91E+01		No cancer RB-RSV	Analyte conc. < RL
Iron	7439-89-6	NA	5.13E+04		No cancer RB-RSV	Analyte conc. < RL
Isopropylbenzene (cumene)	98-82-8	NA	2.56E+02		No cancer RB-RSV	Analyte conc. < RL
Manganese (non-diet)	7439-96-5	NA	1.12E+03		No cancer RB-RSV	Analyte conc. < RL
Mercury (elemental)	7439-97-6	NA	3.13E+00		No cancer RB-RSV	Analyte conc. < RL
Methyl ethyl ketone	78-93-3	NA	1.70E+04		No cancer RB-RSV	Analyte conc. < RL
Methyl tert-butyl ether (MTBE)	1634-04-4	NA	6.49E+02		No cancer RB-RSV	Analyte conc. < RL
Molybdenum	7439-98-7	NA	3.66E+02		No cancer RB-RSV	Analyte conc. < RL
Naphthalene	91-20-3	2.72E+00	2.24E+02		Analyte conc. < RL	Analyte conc. < RL
Nickel	7440-02-0	5.23E+03	9.40E+02		Analyte conc. < RL	Analyte conc. < RL
(HMX)	2691-41-0	NA	3.70E+03		No cancer RB-RSV	Analyte conc. < RL
Pentachlorophenol	87-86-5	4.84E-01	2.37E+02		Analyte conc. < RL	Analyte conc. < RL
Pentaerythritol tetranitrate (PETN)	78-11-5	NA	1.22E+02		No cancer RB-RSV	Analyte conc. < RL
Perchlorate	14797-23-0	NA	5.13E+01		No cancer RB-RSV	Analyte conc. < RL
Perfluorheptanoic acid (PFHpA)	375-85-9	NA	1.22E+00		No cancer RB-RSV	Analyte conc. < RL
Perfluorohexane sulfonic acid (PFHxS)	355-46-4	NA	1.22E+00		No cancer RB-RSV	Analyte conc. < RL
Perfluorononanoic acid (PFNA)	375-95-1	NA	1.22E+00		No cancer RB-RSV	Analyte conc. < RL
Perfluorooctane sulfonic acid (PFOS)	1763-23-1	NA	1.22E+00		No cancer RB-RSV	Analyte conc. < RL
Perfluorooctanoic acid (PFOA)	335-67-1	3.96E+00	1.22E+00		Analyte conc. < RL	Analyte conc. < RL
Propoxur (Baygon)	114-26-1	7.88E+01	2.43E+02		Analyte conc. < RL	Analyte conc. < RL
Propyl benzene, n-	103-65-1	NA	2.53E+02		No cancer RB-RSV	Analyte conc. < RL
Selenium	7782-49-2	NA	3.66E+02		No cancer RB-RSV	Analyte conc. < RL
Silver	7440-22-4	NA	2.37E+02		No cancer RB-RSV	Analyte conc. < RL
Tetrachloroethane, 1,1,1,2-	630-20-6	1.32E+00	2.10E+03		Analyte conc. < RL	Analyte conc. < RL
Tetrachloroethylene	127-18-4	2.38E+00	1.13E+02		Analyte conc. < RL	Analyte conc. < RL
Thallium (soluble Thallium)	7440-28-0 <sup>a</sup>	NA	7.33E-01		No cancer RB-RSV	Analyte conc. < RL
Toluene	108-88-3	NA	7.06E+02		No cancer RB-RSV	Analyte conc. < RL
Trichloroethylene	79-01-6	6.81E-01	6.21E+00		Analyte conc. < RL	Analyte conc. < RL
Trichloropropane, 1,2,3-	96-18-4	3.11E-03	8.67E+00		Analyte conc. < RL	Analyte conc. < RL
Trimethylbenzene, 1,2,3-	526-73-8	NA	2.06E+02		No cancer RB-RSV	Analyte conc. < RL
Trimethylbenzene, 1,2,4-	95-63-6	NA	1.66E+02		No cancer RB-RSV	Analyte conc. < RL
Trimethylbenzene, 1,3,5-	108-67-8	NA	1.44E+02		No cancer RB-RSV	Analyte conc. < RL
Trinitrotoluene, 2,4,6- (TNT)	118-96-7	1.15E+01	3.49E+01		Analyte conc. < RL	Analyte conc. < RL
Uranium (soluble salts)	NA	NA	4.40E+01		No cancer RB-RSV	Analyte conc. < RL
Vanadium	7440-62-2	NA	2.77E+00		No cancer RB-RSV	Analyte conc. < RL
Vinyl chloride	75-01-4	9.83E-02	8.51E+01		Analyte conc. < RL	Analyte conc. < RL
Xylenes	1330-20-7	NA	2.52E+02		No cancer RB-RSV	Analyte conc. < RL
Zinc	7440-66-6	NA	2.20E+04		No cancer RB-RSV	Analyte conc. < RL
<sup>a</sup> RB-RSV <sub>1</sub> corresponds to a one-in-one-million ILCR. See RUEL Appendix E, Table 1.					Sample Cumulative ILCR:	Sample HI:
<sup>b</sup> RB-RSV <sub>2</sub> corresponds to a HQ of 1 based on Hypothetical Young Child Resident scenario. See RUEL Appendix E, Table 1.					0.00E+00	6.52E-06

Notes:

HI = Hazard Index (sum of Hazard Quotients)

HQ = Hazard Quotient

ILCR = Incremental Lifetime Cancer Risk

NA = Not Available

RB-RSV<sub>1</sub> = Risk-Based Residential Soil Value based on cancer

RB-RSV<sub>2</sub> = Risk-Based Residential Soil Value based on noncancer endpoint

\*- CAS Number for 2,3,7,8-TCDD

\*\* - CAS Number is for Metallic Thallium

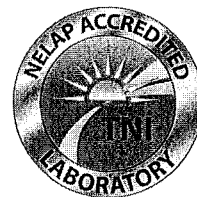
c. The 2,3,7,8-TCDD TEQ row should include the sum of the concentrations of all dioxins, furans, and dioxin-like PCBs reported as 2,3,7,8-TCDD toxic equivalents.

d. The BaP-TE row should include the sum of the concentrations for all carcinogenic PAHs (including benzo(a)pyrene) reported as Benzo(a)pyrene toxic equivalents. See direction 6 for designated urban background locations.

e. Benzo(a)pyrene row should include only the concentration of benzo(a)pyrene in order to address its noncancer hazards.

f. The Total PCBs row should include the sum of the concentrations for all PCBs except dioxin-like PCBs. Dioxin-like PCBs should be included in the 2,3,7,8-TCDD TE concentration entry.

Angela Emerson  
LE Environmental LLC  
21 North Main Street #1  
Waterbury, VT 05676



Laboratory Report for:

Eastern Analytical, Inc. ID: 244364  
Client Identification: Pigeon Property | 19-138  
Date Received: 6/10/2022

Enclosed are the analytical results per the Chain of Custody for sample(s) in the referenced project. All analyses were performed in accordance with our QA/QC Program, NELAP and other applicable state requirements. All quality control criteria was within acceptance criteria unless noted on the report pages. Results are for the exclusive use of the client named on this report and will not be released to a third party without consent.

The following information is contained within this report: Sample Conditions summary, Analytical Results/Data, Quality Control data (if requested) and copies of the Chain of Custody. This report may not be reproduced except in full, without the written approval of the laboratory.

The following standard abbreviations and conventions apply to all EAI reports:

- < : "less than" followed by the reporting limit
- > : "greater than" followed by the reporting limit
- %R : % Recovery

Certifications:

Eastern Analytical, Inc. maintains certification in the following states: Connecticut (PH-0492), Maine (NH005), Massachusetts (M-NH005), New Hampshire/NELAP (1012), Rhode Island (269), Vermont (VT1012), New York (12072), West Virginia (9910C) and Alabama (41620). Please refer to our website at [www.easternanalytical.com](http://www.easternanalytical.com) for a copy of our certificates and accredited parameters.


References:

- EPA 600/4-79-020, 1983
- Standard Methods for Examination of Water and Wastewater, 20th, 21st, 22nd & 23rd edition or noted revision year.
- Test Methods for Evaluating Solid Waste SW 846 3rd Edition including updates IVA and IVB
- Hach Water Analysis Handbook, 4th edition, 1992

If you have any questions regarding the results contained within, please feel free to contact customer service. Unless otherwise requested, we will dispose of the sample(s) 6 weeks from the sample receipt date.

We appreciate this opportunity to be of service and look forward to your continued patronage.

Sincerely,

  
Lorraine Olashaw, Lab Director

6.16.22  
Date



# SAMPLE CONDITIONS PAGE

EAI ID#: 244364

Client: LE Environmental LLC

Client Designation: Pigeon Property | 19-138

Temperature upon receipt (°C): 2.5

Acceptable temperature range (°C): 0-6

Received on ice or cold packs (Yes/No): Y

Lab ID	Sample ID	Date Received	Date/Time Sampled	Sample Matrix	% Dry Weight	Exceptions/Comments (other than thermal preservation)
244364.01	SB-122	6/10/22	6/8/22 11:00	soil	79.5	Adheres to Sample Acceptance Policy
244364.02	SB-123	6/10/22	6/8/22 10:00	soil	75.8	Adheres to Sample Acceptance Policy
244364.03	SB-124	6/10/22	6/8/22 09:00	soil	85.1	Adheres to Sample Acceptance Policy
244364.04	SB-125	6/10/22	6/8/22 10:50	soil	68.0	Adheres to Sample Acceptance Policy
244364.05	SB-126	6/10/22	6/8/22 09:45	soil	78.5	Adheres to Sample Acceptance Policy
244364.06	SB-127	6/10/22	6/8/22 08:50	soil	84.7	Adheres to Sample Acceptance Policy
244364.07	SB-128	6/10/22	6/8/22 10:40	soil	75.9	Adheres to Sample Acceptance Policy
244364.08	SB-129	6/10/22	6/8/22 09:35	soil	79.4	Adheres to Sample Acceptance Policy
244364.09	SB-130	6/10/22	6/8/22 08:35	soil	82.0	Adheres to Sample Acceptance Policy
244364.1	SB-131	6/10/22	6/8/22 10:30	soil	73.6	Adheres to Sample Acceptance Policy
244364.11	SB-132	6/10/22	6/8/22 09:20	soil	76.4	Adheres to Sample Acceptance Policy
244364.12	SB-133	6/10/22	6/8/22 10:20	soil	73.4	Adheres to Sample Acceptance Policy
244364.13	Duplicate	6/10/22	6/8/22 09:00	soil	86.7	Adheres to Sample Acceptance Policy

All results contained in this report relate only to the above listed samples.

Unless otherwise noted:

- Hold times, preservation, container types, and sample conditions adhered to EPA Protocol.
- Solid samples are reported on a dry weight basis, unless otherwise noted. pH/Corrosivity, Flashpoint, Ignitability, Paint Filter, Conductivity and Specific Gravity are always reported on an "as received" basis.
- Analysis of pH, Total Residual Chlorine, Dissolved Oxygen and Sulfite were performed at the laboratory outside of the recommended 15 minute hold time.
- Samples collected by Eastern Analytical, Inc. (EAI) were collected in accordance with approved EPA procedures.



# LABORATORY REPORT

EAI ID#: 244364

Client: LE Environmental LLC

Client Designation: Pigeon Property | 19-138

Client Sample ID: SB-122  
Lab Sample ID: 244364.01  
Matrix: soil  
Date Sampled: 6/8/22  
Date Received: 6/10/22  
Date Prepared: 6/13/22  
Units: mg/kg  
Method: 8270D  
Analyst: JMR

	Results	Dilution Factor	Date Analyzed	TEF	TEQ
Naphthalene	< 0.009	1	6/13/22		
2-Methylnaphthalene	< 0.009	1	6/13/22		
1-Methylnaphthalene	< 0.009	1	6/13/22		
Acenaphthylene	0.026	1	6/13/22		
Acenaphthene	< 0.009	1	6/13/22		
Fluorene	< 0.009	1	6/13/22		
Phenanthrene	0.090	1	6/13/22		
Anthracene	0.022	1	6/13/22		
Fluoranthene	0.25	1	6/13/22		
Pyrene	0.20	1	6/13/22		
Benzo[a]anthracene	0.11	1	6/13/22	0.1	.011
Chrysene	0.13	1	6/13/22	0.001	.00013
Benzo[b]fluoranthene	0.17	1	6/13/22	0.1	.017
Benzo[k]fluoranthene	0.070	1	6/13/22	0.01	.0007
Benzo[a]pyrene	0.14	1	6/13/22	1	.14
Indeno[1,2,3-cd]pyrene	0.090	1	6/13/22	0.1	.009
Dibenz[a,h]anthracene	0.015	1	6/13/22	1	.015
Benzo[g,h,i]perylene	0.083	1	6/13/22		
p-Terphenyl-D14 (surr)	64 %R		6/13/22		

TEF: Toxicity Equivalent Factor

TEQ: Toxicity Equivalence to Benzo[a]pyrene

The TEF factors set forth in this report are taken from the following EPA document: "Mid- Atlantic Risk Assessment User's Guide: November 2013". This guidance document sets forth a recommended, but not mandatory approach based upon currently available information with respect to risk assessment for response actions at CERCLA sites. This document does not establish binding rules. This document contains the most current TEF values per VT IROCP.



## LABORATORY REPORT

EAI ID#: 244364

Client: LE Environmental LLC

Client Designation: Pigeon Property | 19-138

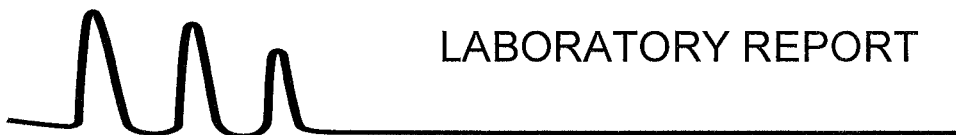
Client Sample ID: SB-123  
Lab Sample ID: 244364.02  
Matrix: soil  
Date Sampled: 6/8/22  
Date Received: 6/10/22  
Date Prepared: 6/13/22  
Units: mg/kg  
Method: 8270D  
Analyst: JMR

	Results	Dilution Factor	Date Analyzed	TEF	TEQ
Naphthalene	< 0.009	1	6/14/22		
2-Methylnaphthalene	< 0.009	1	6/14/22		
1-Methylnaphthalene	< 0.009	1	6/14/22		
Acenaphthylene	0.021	1	6/14/22		
Acenaphthene	< 0.009	1	6/14/22		
Fluorene	< 0.009	1	6/14/22		
Phenanthrene	0.059	1	6/14/22		
Anthracene	0.019	1	6/14/22		
Fluoranthene	0.30	1	6/14/22		
Pyrene	0.27	1	6/14/22		
Benzo[a]anthracene	0.14	1	6/14/22	0.1	.014
Chrysene	0.15	1	6/14/22	0.001	.00015
Benzo[b]fluoranthene	0.19	1	6/14/22	0.1	.019
Benzo[k]fluoranthene	0.072	1	6/14/22	0.01	.00072
Benzo[a]pyrene	0.16	1	6/14/22	1	.16
Indeno[1,2,3-cd]pyrene	0.12	1	6/14/22	0.1	.012
Dibenz[a,h]anthracene	0.022	1	6/14/22	1	.022
Benzo[g,h,i]perylene	0.12	1	6/14/22		
p-Terphenyl-D14 (surr)	56 %R		6/14/22		

TEF: Toxicity Equivalent Factor

TEQ: Toxicity Equivalence to Benzo[a]pyrene

The TEF factors set forth in this report are taken from the following EPA document: "Mid- Atlantic Risk Assessment User's Guide: November 2013". This guidance document sets forth a recommended, but not mandatory approach based upon currently available information with respect to risk assessment for response actions at CERCLA sites. This document does not establish binding rules. This document contains the most current TEF values per VT IROCP.



# LABORATORY REPORT

EAI ID#: 244364

Client: LE Environmental LLC

Client Designation: Pigeon Property | 19-138

Client Sample ID: SB-124  
Lab Sample ID: 244364.03  
Matrix: soil  
Date Sampled: 6/8/22  
Date Received: 6/10/22  
Date Prepared: 6/13/22  
Units: mg/kg  
Method: 8270D  
Analyst: JMR

	Results	Dilution Factor	Date Analyzed	TEF	TEQ
Naphthalene	< 0.008	1	6/14/22		
2-Methylnaphthalene	< 0.008	1	6/14/22		
1-Methylnaphthalene	< 0.008	1	6/14/22		
Acenaphthylene	0.015	1	6/14/22		
Acenaphthene	< 0.008	1	6/14/22		
Fluorene	0.0087	1	6/14/22		
Phenanthrene	0.11	1	6/14/22		
Anthracene	0.011	1	6/14/22		
Fluoranthene	0.15	1	6/14/22		
Pyrene	0.13	1	6/14/22		
Benzo[a]anthracene	0.062	1	6/14/22	0.1	.0062
Chrysene	0.070	1	6/14/22	0.001	.00007
Benzo[b]fluoranthene	0.077	1	6/14/22	0.1	.0077
Benzo[k]fluoranthene	0.027	1	6/14/22	0.01	.00027
Benzo[a]pyrene	0.067	1	6/14/22	1	.067
Indeno[1,2,3-cd]pyrene	0.047	1	6/14/22	0.1	.0047
Dibenz[a,h]anthracene	0.0095	1	6/14/22	1	.0095
Benzo[g,h,i]perylene	0.044	1	6/14/22		
p-Terphenyl-D14 (surr)	62 %R		6/14/22		

TEF: Toxicity Equivalent Factor

TEQ: Toxicity Equivalence to Benzo[a]pyrene

The TEF factors set forth in this report are taken from the following EPA document: "Mid- Atlantic Risk Assessment User's Guide: November 2013". This guidance document sets forth a recommended, but not mandatory approach based upon currently available information with respect to risk assessment for response actions at CERCLA sites. This document does not establish binding rules. This document contains the most current TEF values per VT IROCP.



## LABORATORY REPORT

EAI ID#: 244364

Client: LE Environmental LLC

Client Designation: Pigeon Property | 19-138

Client Sample ID: SB-125  
Lab Sample ID: 244364.04  
Matrix: soil  
Date Sampled: 6/8/22  
Date Received: 6/10/22  
Date Prepared: 6/13/22  
Units: mg/kg  
Method: 8270D  
Analyst: JMR

	Results	Dilution Factor	Date Analyzed	TEF	TEQ
Naphthalene	< 0.01	1	6/14/22		
2-Methylnaphthalene	< 0.01	1	6/14/22		
1-Methylnaphthalene	< 0.01	1	6/14/22		
Acenaphthylene	< 0.01	1	6/14/22		
Acenaphthene	< 0.01	1	6/14/22		
Fluorene	< 0.01	1	6/14/22		
Phenanthrene	0.020	1	6/14/22		
Anthracene	< 0.01	1	6/14/22		
Fluoranthene	0.042	1	6/14/22		
Pyrene	0.035	1	6/14/22		
Benzo[a]anthracene	0.017	1	6/14/22	0.1	.0017
Chrysene	0.019	1	6/14/22	0.001	.000019
Benzo[b]fluoranthene	0.025	1	6/14/22	0.1	.0025
Benzo[k]fluoranthene	0.011	1	6/14/22	0.01	.00011
Benzo[a]pyrene	0.021	1	6/14/22	1	.021
Indeno[1,2,3-cd]pyrene	0.017	1	6/14/22	0.1	.0017
Dibenz[a,h]anthracene	< 0.01	1	6/14/22	1	< .01
Benzo[g,h,i]perylene	0.016	1	6/14/22		
p-Terphenyl-D14 (surr)	59 %R		6/14/22		

TEF: Toxicity Equivalent Factor

TEQ: Toxicity Equivalence to Benzo[a]pyrene

The TEF factors set forth in this report are taken from the following EPA document: "Mid- Atlantic Risk Assessment User's Guide: November 2013". This guidance document sets forth a recommended, but not mandatory approach based upon currently available information with respect to risk assessment for response actions at CERCLA sites. This document does not establish binding rules. This document contains the most current TEF values per VT IROCP.



## LABORATORY REPORT

EAI ID#: 244364

Client: LE Environmental LLC

Client Designation: Pigeon Property | 19-138

Client Sample ID: SB-126  
Lab Sample ID: 244364.05  
Matrix: soil  
Date Sampled: 6/8/22  
Date Received: 6/10/22  
Date Prepared: 6/13/22  
Units: mg/kg  
Method: 8270D  
Analyst: JMR

	Results	Dilution Factor	Date Analyzed	TEF	TEQ
Naphthalene	< 0.009	1	6/14/22		
2-Methylnaphthalene	< 0.009	1	6/14/22		
1-Methylnaphthalene	< 0.009	1	6/14/22		
Acenaphthylene	0.022	1	6/14/22		
Acenaphthene	< 0.009	1	6/14/22		
Fluorene	< 0.009	1	6/14/22		
Phenanthrene	0.011	1	6/14/22		
Anthracene	< 0.009	1	6/14/22		
Fluoranthene	0.051	1	6/14/22		
Pyrene	0.078	1	6/14/22		
Benzo[a]anthracene	0.047	1	6/14/22	0.1	.0047
Chrysene	0.055	1	6/14/22	0.001	.000055
Benzo[b]fluoranthene	0.049	1	6/14/22	0.1	.0049
Benzo[k]fluoranthene	0.019	1	6/14/22	0.01	.00019
Benzo[a]pyrene	0.055	1	6/14/22	1	.055
Indeno[1,2,3-cd]pyrene	0.026	1	6/14/22	0.1	.0026
Dibenz[a,h]anthracene	< 0.009	1	6/14/22	1	< .009
Benzo[g,h,i]perylene	0.025	1	6/14/22		
p-Terphenyl-D14 (surr)	68 %R		6/14/22		

TEF: Toxicity Equivalent Factor

TEQ: Toxicity Equivalence to Benzo[a]pyrene

The TEF factors set forth in this report are taken from the following EPA document: "Mid- Atlantic Risk Assessment User's Guide: November 2013". This guidance document sets forth a recommended, but not mandatory approach based upon currently available information with respect to risk assessment for response actions at CERCLA sites. This document does not establish binding rules. This document contains the most current TEF values per VT IROCP.



# LABORATORY REPORT

EAI ID#: 244364

Client: LE Environmental LLC

Client Designation: Pigeon Property | 19-138

Client Sample ID: SB-127  
Lab Sample ID: 244364.06  
Matrix: soil  
Date Sampled: 6/8/22  
Date Received: 6/10/22  
Date Prepared: 6/13/22  
Units: mg/kg  
Method: 8270D  
Analyst: JMR

	Results	Dilution Factor	Date Analyzed	TEF	TEQ
Naphthalene	< 0.008	1	6/14/22		
2-Methylnaphthalene	< 0.008	1	6/14/22		
1-Methylnaphthalene	< 0.008	1	6/14/22		
Acenaphthylene	< 0.008	1	6/14/22		
Acenaphthene	< 0.008	1	6/14/22		
Fluorene	< 0.008	1	6/14/22		
Phenanthrene	< 0.008	1	6/14/22		
Anthracene	< 0.008	1	6/14/22		
Fluoranthene	0.014	1	6/14/22		
Pyrene	0.012	1	6/14/22		
Benzo[a]anthracene	0.0087	1	6/14/22	0.1	.00087
Chrysene	< 0.008	1	6/14/22	0.001	< .00000
Benzo[b]fluoranthene	0.0085	1	6/14/22	0.1	.00085
Benzo[k]fluoranthene	< 0.008	1	6/14/22	0.01	< .00008
Benzo[a]pyrene	< 0.008	1	6/14/22	1	< .008
Indeno[1,2,3-cd]pyrene	< 0.008	1	6/14/22	0.1	< .0008
Dibenz[a,h]anthracene	< 0.008	1	6/14/22	1	< .008
Benzo[g,h,i]perylene	< 0.008	1	6/14/22		
p-Terphenyl-D14 (surr)	69 %R		6/14/22		

TEF: Toxicity Equivalent Factor

TEQ: Toxicity Equivalence to Benzo[a]pyrene

The TEF factors set forth in this report are taken from the following EPA document: "Mid- Atlantic Risk Assessment User's Guide: November 2013". This guidance document sets forth a recommended, but not mandatory approach based upon currently available information with respect to risk assessment for response actions at CERCLA sites. This document does not establish binding rules. This document contains the most current TEF values per VT IROCP.



# LABORATORY REPORT

EAI ID#: 244364

Client: **LE Environmental LLC**

Client Designation: **Pigeon Property | 19-138**

Client Sample ID: SB-128  
Lab Sample ID: 244364.07  
Matrix: soil  
Date Sampled: 6/8/22  
Date Received: 6/10/22  
Date Prepared: 6/13/22  
Units: mg/kg  
Method: 8270D  
Analyst: JMR

	Results	Dilution Factor	Date Analyzed	TEF	TEQ
Naphthalene	< 0.009	1	6/14/22		
2-Methylnaphthalene	< 0.009	1	6/14/22		
1-Methylnaphthalene	< 0.009	1	6/14/22		
Acenaphthylene	< 0.009	1	6/14/22		
Acenaphthene	< 0.009	1	6/14/22		
Fluorene	< 0.009	1	6/14/22		
Phenanthrene	0.013	1	6/14/22		
Anthracene	< 0.009	1	6/14/22		
Fluoranthene	0.020	1	6/14/22		
Pyrene	0.017	1	6/14/22		
Benzo[a]anthracene	0.0093	1	6/14/22	0.1	.00093
Chrysene	< 0.009	1	6/14/22	0.001	< .00000
Benzo[b]fluoranthene	0.0092	1	6/14/22	0.1	.00092
Benzo[k]fluoranthene	< 0.009	1	6/14/22	0.01	< .00009
Benzo[a]pyrene	< 0.009	1	6/14/22	1	< .009
Indeno[1,2,3-cd]pyrene	< 0.009	1	6/14/22	0.1	< .0009
Dibenz[a,h]anthracene	< 0.009	1	6/14/22	1	< .009
Benzo[g,h,i]perylene	< 0.009	1	6/14/22		
p-Terphenyl-D14 (surr)	55 %R		6/14/22		

TEF: Toxicity Equivalent Factor

TEQ: Toxicity Equivalence to Benzo[a]pyrene

The TEF factors set forth in this report are taken from the following EPA document: "Mid- Atlantic Risk Assessment User's Guide: November 2013". This guidance document sets forth a recommended, but not mandatory approach based upon currently available information with respect to risk assessment for response actions at CERCLA sites. This document does not establish binding rules. This document contains the most current TEF values per VT IROCP.



# LABORATORY REPORT

EAI ID#: 244364

Client: LE Environmental LLC

Client Designation: Pigeon Property | 19-138

Client Sample ID: SB-129  
Lab Sample ID: 244364.08  
Matrix: soil  
Date Sampled: 6/8/22  
Date Received: 6/10/22  
Date Prepared: 6/13/22  
Units: mg/kg  
Method: 8270D  
Analyst: JMR

	Results	Dilution Factor	Date Analyzed	TEF	TEQ
Naphthalene	< 0.009	1	6/14/22		
2-Methylnaphthalene	< 0.009	1	6/14/22		
1-Methylnaphthalene	< 0.009	1	6/14/22		
Acenaphthylene	0.0099	1	6/14/22		
Acenaphthene	< 0.009	1	6/14/22		
Fluorene	< 0.009	1	6/14/22		
Phenanthrene	0.036	1	6/14/22		
Anthracene	< 0.009	1	6/14/22		
Fluoranthene	0.074	1	6/14/22		
Pyrene	0.071	1	6/14/22		
Benzo[a]anthracene	0.040	1	6/14/22	0.1	.004
Chrysene	0.045	1	6/14/22	0.001	.000045
Benzo[b]fluoranthene	0.064	1	6/14/22	0.1	.0064
Benzo[k]fluoranthene	0.023	1	6/14/22	0.01	.00023
Benzo[a]pyrene	0.053	1	6/14/22	1	.053
Indeno[1,2,3-cd]pyrene	0.037	1	6/14/22	0.1	.0037
Dibenz[a,h]anthracene	< 0.009	1	6/14/22	1	< .009
Benzo[g,h,i]perylene	0.033	1	6/14/22		
p-Terphenyl-D14 (surr)	59 %R		6/14/22		

TEF: Toxicity Equivalent Factor

TEQ: Toxicity Equivalence to Benzo[a]pyrene

The TEF factors set forth in this report are taken from the following EPA document: "Mid- Atlantic Risk Assessment User's Guide: November 2013". This guidance document sets forth a recommended, but not mandatory approach based upon currently available information with respect to risk assessment for response actions at CERCLA sites. This document does not establish binding rules. This document contains the most current TEF values per VT IROCP.



## LABORATORY REPORT

EAI ID#: 244364

Client: LE Environmental LLC

Client Designation: Pigeon Property | 19-138

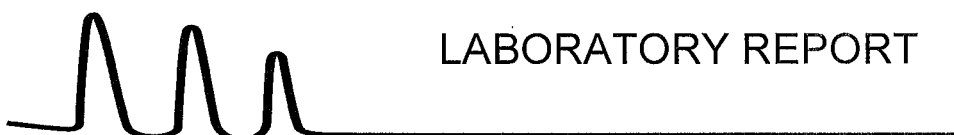
Client Sample ID: SB-130  
Lab Sample ID: 244364.09  
Matrix: soil  
Date Sampled: 6/8/22  
Date Received: 6/10/22  
Date Prepared: 6/13/22  
Units: mg/kg  
Method: 8270D  
Analyst: JMR

	Results	Dilution Factor	Date Analyzed	TEF	TEQ
Naphthalene	< 0.008	1	6/14/22		
2-Methylnaphthalene	< 0.008	1	6/14/22		
1-Methylnaphthalene	< 0.008	1	6/14/22		
Acenaphthylene	< 0.008	1	6/14/22		
Acenaphthene	< 0.008	1	6/14/22		
Fluorene	< 0.008	1	6/14/22		
Phenanthrene	< 0.008	1	6/14/22		
Anthracene	< 0.008	1	6/14/22		
Fluoranthene	0.013	1	6/14/22		
Pyrene	0.012	1	6/14/22		
Benzo[a]anthracene	0.0088	1	6/14/22	0.1	.00088
Chrysene	< 0.008	1	6/14/22	0.001	< .00000
Benzo[b]fluoranthene	0.0091	1	6/14/22	0.1	.00091
Benzo[k]fluoranthene	< 0.008	1	6/14/22	0.01	< .00008
Benzo[a]pyrene	< 0.008	1	6/14/22	1	< .008
Indeno[1,2,3-cd]pyrene	< 0.008	1	6/14/22	0.1	< .0008
Dibenz[a,h]anthracene	< 0.008	1	6/14/22	1	< .008
Benzo[g,h,i]perylene	< 0.008	1	6/14/22		
p-Terphenyl-D14 (surr)	63 %R		6/14/22		

TEF: Toxicity Equivalent Factor

TEQ: Toxicity Equivalence to Benzo[a]pyrene

The TEF factors set forth in this report are taken from the following EPA document: "Mid- Atlantic Risk Assessment User's Guide: November 2013". This guidance document sets forth a recommended, but not mandatory approach based upon currently available information with respect to risk assessment for response actions at CERCLA sites. This document does not establish binding rules. This document contains the most current TEF values per VT IROCP.



## LABORATORY REPORT

EAI ID#: 244364

Client: LE Environmental LLC

Client Designation: Pigeon Property | 19-138

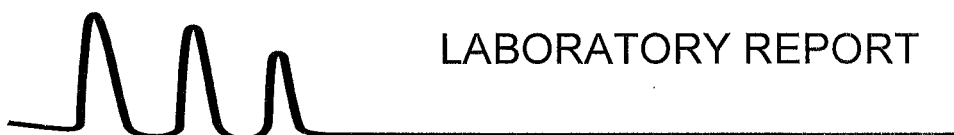
Client Sample ID: SB-131  
Lab Sample ID: 244364.1  
Matrix: soil  
Date Sampled: 6/8/22  
Date Received: 6/10/22  
Date Prepared: 6/13/22  
Units: mg/kg  
Method: 8270D  
Analyst: JMR

	Results	Dilution Factor	Date Analyzed	TEF	TEQ
Naphthalene	< 0.01	1	6/14/22		
2-Methylnaphthalene	< 0.01	1	6/14/22		
1-Methylnaphthalene	< 0.01	1	6/14/22		
Acenaphthylene	< 0.01	1	6/14/22		
Acenaphthene	< 0.01	1	6/14/22		
Fluorene	< 0.01	1	6/14/22		
Phenanthrene	< 0.01	1	6/14/22		
Anthracene	< 0.01	1	6/14/22		
Fluoranthene	0.012	1	6/14/22		
Pyrene	0.010	1	6/14/22		
Benzo[a]anthracene	< 0.01	1	6/14/22	0.1	< .001
Chrysene	< 0.01	1	6/14/22	0.001	< .00001
Benzo[b]fluoranthene	< 0.01	1	6/14/22	0.1	< .001
Benzo[k]fluoranthene	< 0.01	1	6/14/22	0.01	< .0001
Benzo[a]pyrene	< 0.01	1	6/14/22	1	< .01
Indeno[1,2,3-cd]pyrene	< 0.01	1	6/14/22	0.1	< .001
Dibenz[a,h]anthracene	< 0.01	1	6/14/22	1	< .01
Benzo[g,h,i]perylene	< 0.01	1	6/14/22		
p-Terphenyl-D14 (surr)	54 %R		6/14/22		

TEF: Toxicity Equivalent Factor

TEQ: Toxicity Equivalence to Benzo[a]pyrene

The TEF factors set forth in this report are taken from the following EPA document: "Mid- Atlantic Risk Assessment User's Guide: November 2013". This guidance document sets forth a recommended, but not mandatory approach based upon currently available information with respect to risk assessment for response actions at CERCLA sites. This document does not establish binding rules. This document contains the most current TEF values per VT IROCP.



## LABORATORY REPORT

EAI ID#: 244364

Client: LE Environmental LLC

Client Designation: Pigeon Property | 19-138

Client Sample ID: SB-132  
Lab Sample ID: 244364.11  
Matrix: soil  
Date Sampled: 6/8/22  
Date Received: 6/10/22  
Date Prepared: 6/13/22  
Units: mg/kg  
Method: 8270D  
Analyst: JMR

	Results	Dilution Factor	Date Analyzed	TEF	TEQ
Naphthalene	< 0.009	1	6/14/22		
2-Methylnaphthalene	< 0.009	1	6/14/22		
1-Methylnaphthalene	< 0.009	1	6/14/22		
Acenaphthylene	< 0.009	1	6/14/22		
Acenaphthene	< 0.009	1	6/14/22		
Fluorene	< 0.009	1	6/14/22		
Phenanthrene	0.024	1	6/14/22		
Anthracene	< 0.009	1	6/14/22		
Fluoranthene	0.041	1	6/14/22		
Pyrene	0.034	1	6/14/22		
Benzo[a]anthracene	0.015	1	6/14/22	0.1	.0015
Chrysene	0.017	1	6/14/22	0.001	.000017
Benzo[b]fluoranthene	0.021	1	6/14/22	0.1	.0021
Benzo[k]fluoranthene	< 0.009	1	6/14/22	0.01	< .00009
Benzo[a]pyrene	0.017	1	6/14/22	1	.017
Indeno[1,2,3-cd]pyrene	0.012	1	6/14/22	0.1	.0012
Dibenz[a,h]anthracene	< 0.009	1	6/14/22	1	< .009
Benzo[g,h,i]perylene	0.010	1	6/14/22		
p-Terphenyl-D14 (surr)	62 %R		6/14/22		

TEF: Toxicity Equivalent Factor

TEQ: Toxicity Equivalence to Benzo[a]pyrene

The TEF factors set forth in this report are taken from the following EPA document: "Mid- Atlantic Risk Assessment User's Guide: November 2013". This guidance document sets forth a recommended, but not mandatory approach based upon currently available information with respect to risk assessment for response actions at CERCLA sites. This document does not establish binding rules. This document contains the most current TEF values per VT IROCP.



# LABORATORY REPORT

EAI ID#: 244364

Client: LE Environmental LLC

Client Designation: Pigeon Property | 19-138

Client Sample ID: SB-133  
Lab Sample ID: 244364.12  
Matrix: soil  
Date Sampled: 6/8/22  
Date Received: 6/10/22  
Date Prepared: 6/13/22  
Units: mg/kg  
Method: 8270D  
Analyst: JMR

	Results	Dilution Factor	Date Analyzed	TEF	TEQ
Naphthalene	< 0.009	1	6/14/22		
2-Methylnaphthalene	< 0.009	1	6/14/22		
1-Methylnaphthalene	< 0.009	1	6/14/22		
Acenaphthylene	< 0.009	1	6/14/22		
Acenaphthene	< 0.009	1	6/14/22		
Fluorene	< 0.009	1	6/14/22		
Phenanthrene	< 0.009	1	6/14/22		
Anthracene	< 0.009	1	6/14/22		
Fluoranthene	0.012	1	6/14/22		
Pyrene	0.011	1	6/14/22		
Benzo[a]anthracene	< 0.009	1	6/14/22	0.1	< .0009
Chrysene	< 0.009	1	6/14/22	0.001	< .00000
Benzo[b]fluoranthene	< 0.009	1	6/14/22	0.1	< .0009
Benzo[k]fluoranthene	< 0.009	1	6/14/22	0.01	< .00009
Benzo[a]pyrene	< 0.009	1	6/14/22	1	< .009
Indeno[1,2,3-cd]pyrene	< 0.009	1	6/14/22	0.1	< .0009
Dibenz[a,h]anthracene	< 0.009	1	6/14/22	1	< .009
Benzo[g,h,i]perylene	< 0.009	1	6/14/22		
p-Terphenyl-D14 (surr)	54 %R		6/14/22		

TEF: Toxicity Equivalent Factor

TEQ: Toxicity Equivalence to Benzo[a]pyrene

The TEF factors set forth in this report are taken from the following EPA document: "Mid- Atlantic Risk Assessment User's Guide: November 2013". This guidance document sets forth a recommended, but not mandatory approach based upon currently available information with respect to risk assessment for response actions at CERCLA sites. This document does not establish binding rules. This document contains the most current TEF values per VT IROCP.



# LABORATORY REPORT

EAI ID#: 244364

Client: LE Environmental LLC

Client Designation: Pigeon Property | 19-138

Client Sample ID: Duplicate  
Lab Sample ID: 244364.13  
Matrix: soil  
Date Sampled: 6/8/22  
Date Received: 6/10/22  
Date Prepared: 6/13/22  
Units: mg/kg  
Method: 8270D  
Analyst: JMR

	Results	Dilution Factor	Date Analyzed	TEF	TEQ
Naphthalene	< 0.008	1	6/14/22		
2-Methylnaphthalene	< 0.008	1	6/14/22		
1-Methylnaphthalene	< 0.008	1	6/14/22		
Acenaphthylene	< 0.008	1	6/14/22		
Acenaphthene	< 0.008	1	6/14/22		
Fluorene	< 0.008	1	6/14/22		
Phenanthrene	< 0.008	1	6/14/22		
Anthracene	< 0.008	1	6/14/22		
Fluoranthene	0.015	1	6/14/22		
Pyrene	0.016	1	6/14/22		
Benzo[a]anthracene	0.0098	1	6/14/22	0.1	.00098
Chrysene	0.0098	1	6/14/22	0.001	.0000098
Benzo[b]fluoranthene	0.012	1	6/14/22	0.1	.0012
Benzo[k]fluoranthene	< 0.008	1	6/14/22	0.01	< .00008
Benzo[a]pyrene	0.0097	1	6/14/22	1	.0097
Indeno[1,2,3-cd]pyrene	< 0.008	1	6/14/22	0.1	< .0008
Dibenz[a,h]anthracene	< 0.008	1	6/14/22	1	< .008
Benzo[g,h,i]perylene	< 0.008	1	6/14/22		
p-Terphenyl-D14 (surr)	65 %R		6/14/22		

TEF: Toxicity Equivalent Factor

TEQ: Toxicity Equivalence to Benzo[a]pyrene

The TEF factors set forth in this report are taken from the following EPA document: "Mid- Atlantic Risk Assessment User's Guide: November 2013". This guidance document sets forth a recommended, but not mandatory approach based upon currently available information with respect to risk assessment for response actions at CERCLA sites. This document does not establish binding rules. This document contains the most current TEF values per VT IROCP.



# QC REPORT

EAI ID#: **244364**

Client: **LE Environmental LLC**

Batch ID: 637907-02369/S061322PAH1

Client Designation: **Pigeon Property | 19-138**

Parameter Name	Blank	LCS	LCSD	Analysis Date	Units	Limits	RPD	Method
Naphthalene	< 0.007	1.1 (67 %R)	1.1 (66 %R) (2 RPD)	6/13/2022	mg/kg	40 - 140	30	8270D
2-Methylnaphthalene	< 0.007	1.2 (74 %R)	1.2 (72 %R) (2 RPD)	6/13/2022	mg/kg	40 - 140	30	8270D
1-Methylnaphthalene	< 0.007	1.2 (71 %R)	1.2 (69 %R) (2 RPD)	6/13/2022	mg/kg	40 - 140	30	8270D
Acenaphthylene	< 0.007	1.2 (71 %R)	1.2 (70 %R) (2 RPD)	6/13/2022	mg/kg	40 - 140	30	8270D
Acenaphthene	< 0.007	1.2 (71 %R)	1.1 (69 %R) (2 RPD)	6/13/2022	mg/kg	40 - 140	30	8270D
Fluorene	< 0.007	1.3 (78 %R)	1.3 (76 %R) (2 RPD)	6/13/2022	mg/kg	40 - 140	30	8270D
Phenanthrene	< 0.007	1.3 (78 %R)	1.3 (75 %R) (3 RPD)	6/13/2022	mg/kg	40 - 140	30	8270D
Anthracene	< 0.007	1.3 (80 %R)	1.3 (77 %R) (3 RPD)	6/13/2022	mg/kg	40 - 140	30	8270D
Fluoranthene	< 0.007	1.3 (79 %R)	1.3 (76 %R) (3 RPD)	6/13/2022	mg/kg	40 - 140	30	8270D
Pyrene	< 0.007	1.3 (79 %R)	1.3 (78 %R) (1 RPD)	6/13/2022	mg/kg	40 - 140	30	8270D
Benzo[a]anthracene	< 0.007	1.3 (76 %R)	1.2 (74 %R) (4 RPD)	6/13/2022	mg/kg	40 - 140	30	8270D
Chrysene	< 0.007	1.3 (80 %R)	1.3 (79 %R) (1 RPD)	6/13/2022	mg/kg	40 - 140	30	8270D
Benzo[b]fluoranthene	< 0.007	1.3 (80 %R)	1.3 (77 %R) (4 RPD)	6/13/2022	mg/kg	40 - 140	30	8270D
Benzo[k]fluoranthene	< 0.007	1.4 (81 %R)	1.3 (80 %R) (1 RPD)	6/13/2022	mg/kg	40 - 140	30	8270D
Benzo[a]pyrene	< 0.007	1.3 (78 %R)	1.3 (76 %R) (3 RPD)	6/13/2022	mg/kg	40 - 140	30	8270D
Indeno[1,2,3-cd]pyrene	< 0.007	1.4 (82 %R)	1.3 (78 %R) (5 RPD)	6/13/2022	mg/kg	40 - 140	30	8270D
Dibenz[a,h]anthracene	< 0.007	1.4 (82 %R)	1.3 (77 %R) (7 RPD)	6/13/2022	mg/kg	40 - 140	30	8270D
Benzo[g,h,i]perylene	< 0.007	1.3 (79 %R)	1.3 (76 %R) (4 RPD)	6/13/2022	mg/kg	40 - 140	30	8270D
p-terphenyl-D14 (surr)	68 %R	78 %R	77 %R	6/13/2022	mg/kg	30 - 130		8270D

\*// Flagged analyte recoveries deviated from the QA/QC limits. Data that impacts sample results are noted on the sample report.



## CHAIN-OF-CUSTODY RECORD

244364

BOLD FIELDS REQUIRED. PLEASE CIRCLE REQUESTED ANALYSIS.

SAMPLE I.D.	SAMPLING DATE/TIME *IF COMPOSITE, INDICATE BOTH START & FINISH DATE/TIME	MATRIX (SEE BELOW) GRAB/*COMPOSITE	VOC		SVOC		TCF METALS		INORGANICS		MICRO		OTHER	# of CONTAINERS	NOTES METH VIAL #
			524.2 524.2 BTEX 8260 624 1, 4 DIOXANE	524.2 MTBE ONLY VTICS	8015 GRO 8015 DRO PEST 608 PEST 8081 OIL & GREASE 1664	MAVPH MAEPH PCB 608 PCB 8082 TPH 1664	8015 GRO 8015 DRO PEST 608 PEST 8081 OIL & GREASE 1664	MAVPH MAEPH PCB 608 PCB 8082 TPH 1664	TCF METALS VOC PEST DISSOLVED METALS (LIST BELOW) TOTAL METALS (LIST BELOW)	ABN BN LI L2 METALS HERB	TS TSS TDS SPEC. CON. Br Cl F SO <sub>4</sub> NO <sub>2</sub> NO <sub>3</sub> NO <sub>2</sub> BOD CBOD T. ALK. TKN NH <sub>3</sub> T. PHOS. O. PHOS. pH T. RES. CHLORINE COD PHENOLS TOC DOC TOTAL CYANIDE TOTAL SULFIDE REACTIVE CYANIDE REACTIVE SULFIDE FLASHPOINT IGNITABILITY TOTAL COLIFORM E. COLI FECAL COLIFORM ENTEROCOCCI HETEROTROPHIC PLATE COUNT	ABN BN LI L2 METALS HERB			
SB-132	6/8/22, 0920	S G												1	
SB-133	1020	S G												1	
Duplicate	0900	S G												1	

PROJECT MANAGER: Angela Emerson  
 COMPANY: LE Environmental LLC  
 ADDRESS: 21 North Main St. Unit #1  
 CITY: Watersburg STATE: VT ZIP: 05476  
 PHONE: 802-917-2001 EXT.:  
 FAX:  
 E-MAIL: Angela@leenv.net  
 SITE NAME: PIGEON PROPERTY  
 PROJECT #: 19-138  
 STATE: NH MA ME VT OTHER:  
 REGULATORY PROGRAM: NPDES: RGP POTW STORMWATER OR  
GWP, OIL FUND, BROWNFIELD OR OTHER:  
 QUOTE #: PO #:

DATE NEEDED: Normal TAT  
 QA/QC REPORTING LEVEL: A B C  
 OR  
 MA MCP  
 ELECTRONIC OPTIONS  
 E-MAIL PDF EQUIS EXCEL  
 SAMPLES: Angela Emerson  
 RETRIEVED BY: Angela Emerson DATE: 6/10/22 TIME: 11:49  
 RETRIEVED BY: Sheela DATE: 6/10/22 TIME: 14:49  
 RELINQUISHED BY: Sheela DATE: 6/10/22 TIME: 14:49  
 RELINQUISHED BY: Sheela DATE: 6/10/22 TIME: 14:49  
 TEMP: 25 °C  
 ICE? YES NO

METALS: 8 RCR 13 PP Fe, Mn Pb, Cu  
 OTHER METALS:  
 SAMPLES FIELD FILTERED? ☐ YES ☐ NO  
 NOTES: (IE: SPECIAL DETECTION LIMITS, BILLING INFO, IF DIFFERENT)  
 SITE HISTORIC:  
 SUSPECTED CONTAMINATION:  
 FIELD READINGS:



Brownfields Contaminated Soil Delineation Investigation Report  
Pigeon Property, 1705 Route 128, Westford, Vermont

APPENDIX C

Data Validation Report

**Data Validation Report  
Pigeon Property PAH Delineation  
Westford, Vermont  
June 23, 2022**

*Project Description*

This data validation report applies to soil samples collected and tested for polycyclic aromatic hydrocarbons (PAHs) at the Pigeon Property in Westford, Vermont on June 8, 2022. Samples were collected using the scope of work presented in the approved Site-Specific Quality Assurance Project Plan (SSQAPP) Addendum (EPA RFA#19093) for Brownfields Contaminated Soil Delineation Investigation revised on May 16, 2022. The planned project scope included collection of 12 soil samples and a duplicate sample for PAH testing to further delineate the horizontal extent of PAH contamination at the Site.

*Soil Sampling Summary*

Twelve soil samples and one duplicate soil sample were collected on June 8, 2022. The samples were collected using a stainless-steel hand auger. Eastern Analytical, Inc. (EAI) of Concord, NH performed laboratory analysis of soil samples. The soil samples were analyzed for PAHs via EPA Method 8270D

*Sampling Procedures and Protocols*

Sampling was performed in accordance with the procedures specified in the SSQAPP addendum. Field data sheets were reviewed to ensure proper documentation of the sampling conditions. All entries were made with permanent ink. Entries included the identity of the sampler, sampling location, time, and date.

The chain of custody forms were reviewed to ensure the sample identification, number, type and size of sample containers, preservatives used; and signatures were properly recorded and were in accordance with the SSQAPP addendum.

The laboratory cover sheets, sample acceptance forms and case narratives were reviewed. All samples adhered to the laboratories' acceptance policies. All samples were analyzed in accordance with the laboratory's SOPs. No deviations from laboratory protocols were noted on the laboratory cover sheets.

*Blanks*

Method blanks were prepared by the laboratory for the PAH analyses performed and reported no detection of compounds, indicating that there was no contamination of

samples while at the laboratory.

#### MS/MSD and LCS/LCSD

The laboratory performed laboratory control samples/laboratory control sample duplicate (LCS/LCSD) analysis. All results were within laboratory control limits.

#### RPD

Relative percent difference (RPD) values were calculated for the SB-124 and duplicate sample obtained in the field. RPDs ranged from 73-84% which exceeds the 50% allowable range. This may be attributed to the relatively low concentrations of PAHs in each sample as well as soil heterogeneity.

#### Surrogate Recovery

Surrogate recovery analyses performed by the laboratories are within acceptable ranges.

#### Reporting Limits

All laboratory reporting limits were below the appropriate regulatory threshold criteria. Several of the samples had laboratory reporting limits above Form K values, but below appropriate regulatory threshold criteria.

#### Deviations

There were no deviations from the site-specific QAPP addendum work scope.

#### Conclusion

Based on the findings presented above, all data should be accepted without condition.

Respectfully Submitted,

A handwritten signature in black ink, appearing to read "AL Liptak". The signature is written in a cursive, flowing style.

Alan Liptak, EP  
Project Quality Assurance Officer

**Data Validation Summary Table**  
**Pigeon Property PAH Delineation**  
**Westford Vermont**  
**LEE #19-138**



Page 1 of 2

Sample Name	SB-122	SB-123	SB-124	SB-125	SB-126	SB-127	SB-128	SB-129
Lab sample number	244364.01	244364.02	244364.03	244364.04	244364.05	244364.06	244364.07	244364.08
Date Sampled	6/8/22	6/8/22	6/8/22	6/8/22	6/8/22	6/8/22	6/8/22	6/8/22
Date of Extraction	6/13/22	6/13/22	6/13/22	6/13/22	6/13/22	6/13/22	6/13/22	6/13/22
Date of Analysis	6/13/22	6/14/22	6/14/22	6/14/22	6/14/22	6/14/22	6/14/22	6/14/22
Sample Type	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil
Was analysis completed within EPA Method specified holding time?	Y	Y	Y	Y	Y	Y	Y	Y
Were the samples properly handled under COC guidelines?	Y	Y	Y	Y	Y	Y	Y	Y
Were the samples properly chilled? (0-6 degrees C)	Y	Y	Y	Y	Y	Y	Y	Y
Were any compounds detected in blanks?	N	N	N	N	N	N	N	N
Were the samples properly labeled?	Y	Y	Y	Y	Y	Y	Y	Y
Relative Percent Difference (RPD) acceptable? (<=50% RPD)	N/A	N/A	N(2)	N/A	N/A	N/A	N/A	N/A
Were laboratory surrogate recovery concentrations acceptable?	Y	Y	Y	Y	Y	Y	Y	Y
Were laboratory control samples and duplicates acceptable?	Y	Y	Y	Y	Y	Y	Y	Y
Reporting limits meet Form K values	N (1)	N (1)	N (1)	N (1)	N (1)	N (1)	N (1)	N (1)
Are reporting limits below applicable standards?	Y	Y	Y	Y	Y	Y	Y	Y
Sample Name	SB-130	SB-131	SB-132	Duplicate				
Lab sample number	244364.09	244364.1	244364.11	244364.12				
Date Sampled	6/8/22	6/8/22	6/8/22	6/8/22				
Date of Extraction	6/13/22	6/13/22	6/13/22	6/13/22				
Date of Analysis	6/14/22	6/14/22	6/14/22	6/14/22				
Sample Type	Soil	Soil	Soil	Soil				
Was analysis completed within EPA Method specified holding time?	Y	Y	Y	Y				
Were the samples properly handled under COC guidelines?	Y	Y	Y	Y				
Were the samples properly chilled? (0-6 degrees C)	Y	Y	Y	Y				
Were any compounds detected in blanks?	N	N	N	N				
Were the samples properly labeled?	Y	Y	Y	Y				
Relative Percent Difference (RPD) acceptable? (<=50% RPD)	N/A	N/A	N/A	N(2)				
Were laboratory surrogate recovery concentrations acceptable?	Y	Y	Y	Y				
Were laboratory control samples and duplicates acceptable?	Y	Y	Y	Y				
Reporting limits meet Form K values	N (1)	N (1)	N (1)	N (1)				
Are reporting limits below applicable standards?	Y	Y	Y	Y				

**Notes:**

Y=Yes, N=No, N/A=Not applicable to sample

N(1)= laboratory reporting limit exceeded Form K value of 0.007 mg/kg

N(2)=RPDs exceeded 50%, likely due to low concentrations and soil heterogeneity

**Relative Percent Difference Calculations**  
**Pigeon Property PAH Delineation**  
**Westford, VT**



Page 2 of 2

<i>Soil Sample</i>	<i>SB-124</i>	<i>Duplicate</i>	Relative
<i>Sample Depth (ft)</i>	<i>0-1.5</i>	<i>0-1.5</i>	Difference
<i>Sample Date</i>	<i>6/8/22</i>	<i>6/8/22</i>	(%)
<b>PCBs, EPA Method 8082 (mg/kg, dry)</b>			
Naphthalene	ND< 0.008	ND< 0.008	-
2-Methylnaphthalene	ND< 0.008	ND< 0.008	-
1-Methylnaphthalene	ND< 0.008	ND< 0.008	-
Acenaphthylene	<b>0.015</b>	ND< 0.008	-
Acenaphthene	ND< 0.008	ND< 0.008	-
Fluorene	0.0087	ND< 0.008	-
Phenanthrene	<b>0.11</b>	ND< 0.008	-
Anthracene	<b>0.011</b>	ND< 0.008	-
Fluoranthene	<b>0.15</b>	<b>0.015</b>	82
Pyrene	<b>0.13</b>	<b>0.016</b>	78
Benzo(a)anthracene	<b>0.062</b>	<b>0.0098</b>	73
Chrysene	<b>0.07</b>	<b>0.0098</b>	75
Benzo(b)fluoranthene	<b>0.077</b>	<b>0.012</b>	73
Benzo(k)fluoranthene	<b>0.027</b>	ND< 0.008	-
Benzo(a)pyrene	<b>0.067</b>	<b>0.0097</b>	75
Indeno(1,2,3-cd)pyrene	<b>0.047</b>	ND< 0.008	-
Dibenz(a,h)anthracene	<b>0.0095</b>	ND< 0.008	-
Benzo(g,h,i)perylene	<b>0.044</b>	ND< 0.008	-
Total Reported PAHs	<b>0.828</b>	<b>0.072</b>	84



Brownfields Contaminated Soil Delineation Investigation Report  
Pigeon Property, 1705 Route 128, Westford, Vermont

## Appendix D

### Field Notes

**1705 ROUTE 128  
WESTFORD, VT  
PAH SOIL SAMPLING FIELD FORM  
JOB # 19-138**

DATE: 6/8/22 INSPECTORS(S): AE/AL

**Equipment Needed:** PID, Handauger, EAI containers, markers, chain of custody, decon equipment (coolers, gloves,alconox, distilled water, etc.)

**TASK 1:** Collect twelve soil samples from 0-18" using a hand auger. Collect one duplicate sample as well. Use a PID to screen each sample for the presence of VOCs. Submit the 13 samples for analytical analysis of PAHs via EPA Method 8270.

<u>Sample #</u>	<u>Time</u>	<u>PID</u>
<u>SB-122</u>	1100	0.0
<u>SB-123</u>	1000	0.0
<u>SB-124</u>	0900	0.0
<u>SB-125</u>	1050	0.0
<u>SB-126</u>	0945	0.0
<u>SB-127</u>	0850	0.0
<u>SB-128</u>	1040	0.0
<u>SB-129</u>	0935	0.0
<u>SB-130</u>	0835	0.0
<u>SB-131</u>	1030	0.0
<u>SB-132</u>	0920	0.0
<u>SB-133</u>	1020	0.0
<u>Duplicate-</u> SB-124	0900	0.0

**Notes:**

Petroleum odors noted near culvert. No sheens noted - no discharge from culvert. PID reading 0.6 ppm in culvert